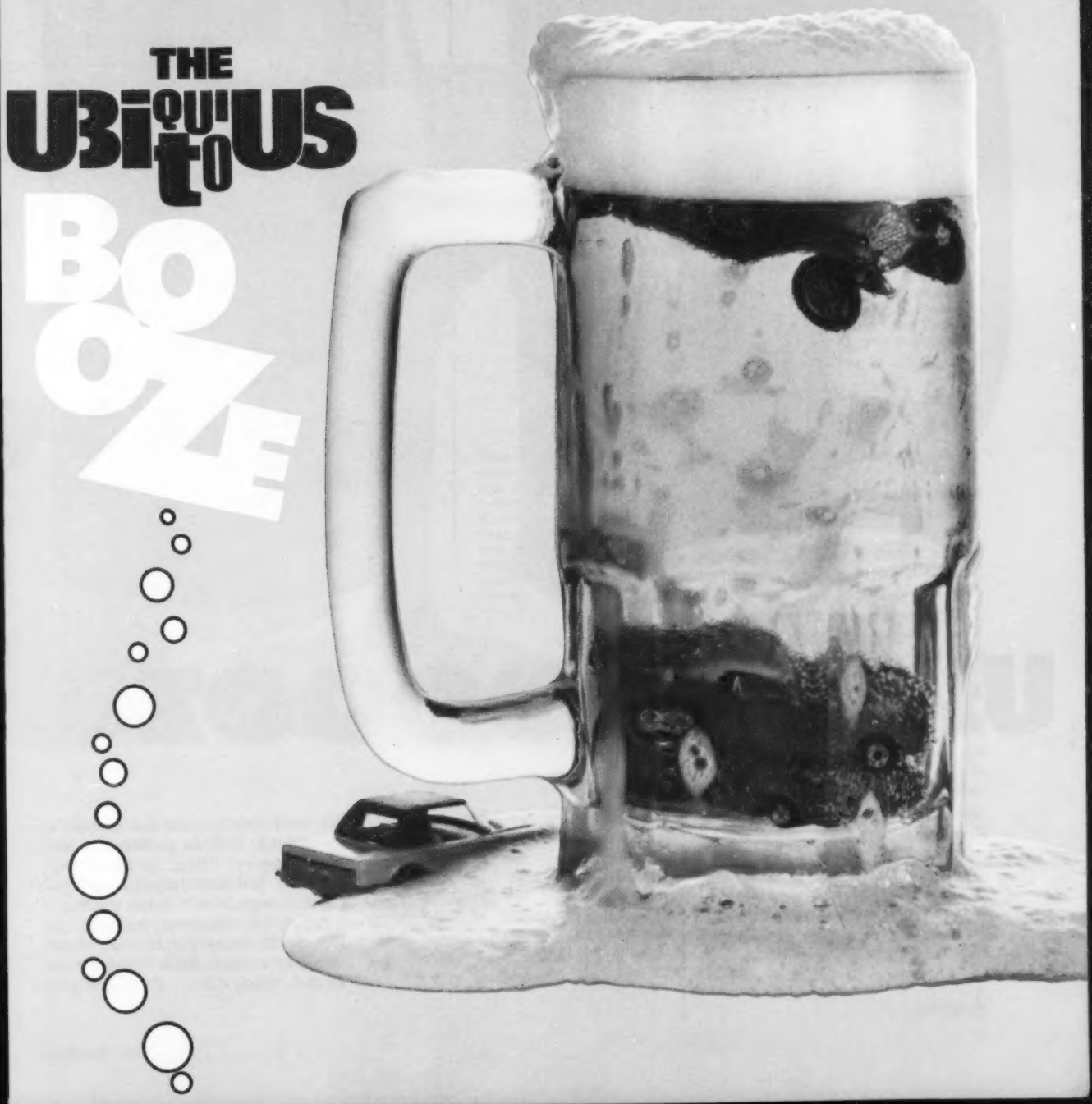
DRIVER

SEPTEMBER 1980

THE UBIQUITOUS BONE



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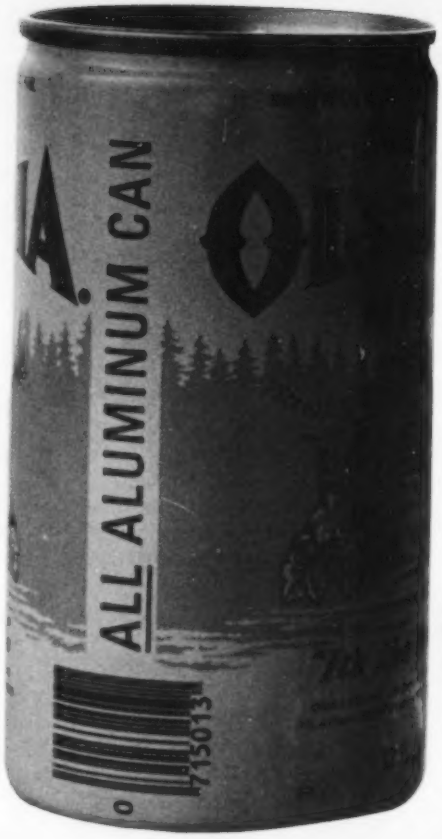

THE UBIQUITOUS booooze

(That means it's drunk everywhere and all the time, even, unfortunately, in connection with driving.)

Hypothetical Conversation:

Sgt #1: Do you drink?
Sgt #2: 'Drink'? You mean like *alcohol*?
Sgt #1: Yes.
Sgt #2: No, I just drink beer.

Does he really mean that beer isn't alcohol? Does he put beer into another category? "Beer, as opposed to alcohol," just like "aspargus, as opposed to vegetables"? Taken that way, it sounds silly. However, that seems to be the way many people think about beer – as a "soft drink" and not as alcohol, which it is.

The objects in this picture have at least one thing in common —they're all alcohol. Alcohol comes in many different forms and proofs, but it all intoxicates, and it all mixes badly with driving.

What brought about this view of beer as not being alcohol? We have a few theories.

Perhaps it's because beer is the first alcoholic beverage that a young person will try. And, as such, it becomes thought of as something for kids as well as adults, as something not dangerous at all.

Maybe it just seems the most natural kind of alcohol to try first. After all, it reminds us of soft drinks. Beer has carbonation like soft drinks, as opposed to "alcohol," which just sits there ominously, without so much as a single bubble. Beer is packaged like soft drinks, in six-packs of cans or small bottles, as opposed to "alcohol," which comes in large bottles (or small flat bottles that *aren't* in a six-pack).

It is advertised on radio and TV with scenes of people having fun, just like soft drinks. And they always have those catchy slogans and tunes. We'll bet you can fill in the blanks on the following, and probably sing the songs, too.

We wonder why people treat beer as though it were a soft drink. Just because they both come in cans, don't underestimate beer's power to make you drunk.

"Weekends were made for _____." "_____, the beer refreshing." "If you've got the time, we've got the beer— _____." "America is turning _____." "Taste the high country; taste _____." "Have a _____ and a smile."

Yes, we threw in a couple of soft drink jingles along with the beer ones, to show that beer is treated in a way very similar to soda pop.

We think beer's acceptance as a pseudo-soft-drink is a result of the fact that people drink it everywhere, in all kinds of settings. You don't find beer just in bars. People drink it at picnics, while relaxing by the pool, between sets of tennis, while watching the sports on television, while working in the garage or the shop, or in the yard. You might find wine or spirits in some of these places, but not nearly as often as beer. Beer is *the* most popular alcohol with young people.

Unfortunately, because it's found in all these settings, it also is found in the systems of people who go driving. And that's something we want to discourage.

continued

THE EDITOR SPEAKS DOUBLE CLUTCH

CATALYTIC CONVERTERS

In the last few years DRIVER has printed numerous items about catalytic converters. We've covered everything from "do they start fires?" (they can if the car is seriously out of tune) to "what do I do with my car overseas where there's no unleaded fuel?" (remove the converter or you'll ruin it and have to replace it when you come home). We've also answered at least a hundred letters from readers with specific questions about catalytic converters.

By this time we figured cat cons were as much a part of American motoring as steel-belted radials. So we were taken by surprise this week to see a top auto pollution engineer recommend that everybody forget about them. Charles M. Heinen says we could get another four or five miles per gallon from most new cars if we recalibrated the engines and changed them to run on higher octane leaded gas without catalytic converters. So far as air pollution is concerned, the emission levels would not be much above the present range.

According to Heinen, engines in Chrysler's labs are doing the job without catalysts and unleaded gasoline. "We are able to do this because of electronic developments. We now know how to burn the fuel better," he says.

The kicker here is still air pollution. The lab engines are equaling or beating the pollution standards of 1978 but can't quite reach the tougher 1980 standards.

Standard Year:	**'78**	**'80**	**'81**
(in grams per mile) hydrocarbons	1.5	0.41	0.41
carbon monoxide	15	7.0	3.4
nitrogen oxide	2.0	2.0	1.0

Is four to five mpg improvement in fuel economy worth a slight relaxation in clean-air standards? That's a question for Congress. Only time will tell if the energy crisis is more of a crisis than the clean-air crisis.

SEP

VOLUME 14 NUMBER 4

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COL. WARREN L. BUSCH
Chief, Safety Education Division

VIRGINIA HENDRIX
Editor

TSgt RON LATHROP
Technical Editor

JERI ROOD
Feature Editor

ALICE MILKEY
Editorial Assistant

DON KELLEHER
Art Director

LORRAINE HAMBLEN
Staff Artist

CLIFF MUNKACSY
Staff Photographer

We don't care how big the Alka-Seltzer tablets are. Miracle cures for hangovers are just like coffee and cold showers for sobering up—they don't work.

Enjoying a few beers by the pool may help keep you cool, but it won't quench your thirst. Alcohol removes fluids from the body, and makes you more thirsty. Also, this young lady would be wise to stay out of the pool when she's been drinking.

To do that let's take a look at what beer is, in comparison to the other forms of alcohol, and decide how we can best avoid the problem of driving under its influence.

It's only beer! First of all, let's say it again: Beer is alcohol. It's a different form than the others—wine and whiskey. Beer is made from malted (germinated) barley, wine is made from grapes and whiskey is made from malted grains. Whiskey is distilled after the fermentation process, which makes it more concentrated. Therefore, the different forms of alcohol have different percentages of alcohol by volume: Whiskey (gin, vodka, etc.) has 40 to 50 percent alcohol; wine has around 12 percent, and beer has 3 to 6 percent.

But don't let that 6% fool you. Beer will hurt your ability to drive just like the others. It'll just take more beer to do the job. How much more? Not as much as you think.

We'll set up a party, complete with music, dancing, games and, of course, a full bar. You and your friends Bob and Kathy agree on most things except what you like to drink. Bob goes for mixed drinks, Kathy likes wine, and you always stick with beer. Who'll be drunker by the end of the evening? That depends on a lot of different factors, but not so much on your personal choice of beverage as you may think.

For each mixed drink that Bob downs, he'll get a shot of distilled alcohol, about 1½ ounces, at probably 80 proof, or about 40% alcohol. That's .6 ounce of pure alcohol in each drink. (1½ x .40 = .6) It'll be more if he drinks doubles.

Kathy gets about 5 ounces of wine in each glass she drinks. At 12 percent alcohol, she also gets .6 ounce of pure alcohol for every drink. So there's no real difference there.

How about you with your "just a beer"? You're probably drinking it straight out of the can, so that's 12 ounces in each one. Beer is advertised at 6% alcohol. Some experts say it's probably only 4, so let's compromise at 5%. Guess what? That's the same amount of alcohol as your friends, .6 ounce. (12 x .05 = .6)

Of course, all these figures are approximate, but you get the point: A drink is a drink is a drink.

Let's be honest, though. The effects of the different drinks will not be the same, because of volume. The effects of your beer will be slower than Bob's whiskey, because your beer is more diluted. Diluting any alcoholic beverage will slow its effects. However—and pay attention to this—if the mixer is carbonated, it will enhance the effects of the alcohol. That means diluting whiskey with a cola will enhance its intoxicating effect. That also means that your beer—a carbonated beverage—will have a greater effect than if it weren't carbonated. The effects *still* won't equal the whiskey as quickly, true. But it definitely takes it out of the category of being "just a beer."

Other factors. What are some of the other factors that will affect the ability of alcohol to intoxicate?

Amount. It's obvious that the more you drink, the drunker you'll get.

Weight. The larger a person you are, the more it will take to get you drunk. Here we'll mention that the legal level of intoxication in most states is .1%. That is, the person's blood must contain one tenth of one percent alcohol for him to be legally drunk. This is called a Blood Alcohol Level (or Blood Alcohol Content) of .1, usually shortened to "BAL (or BAC) of .1."

Bob, at 180 pounds, has more blood in his system than Kathy, who weighs about 130. Therefore, it'll take more alcohol to raise his BAL to .1%.

Food. Food in your stomach will affect the rate with which alcohol will act on you. If you eat before (or during) the party and Bob doesn't, he will get drunk faster. This is because food dilutes the alcohol and coats the stomach lining, through which the alcohol will be absorbed.

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Drinking rate. No matter who has eaten and who hasn't, you and Bob can help control the rate of intoxication, by the rate at which you drink. The faster you drink, the more alcohol will be in your system at any one time.

Here we get into the mechanism of eliminating the stuff from your body. The liver detoxifies the alcohol by chemical means that aren't of much interest to us here. What does interest us is that the rate of detoxification is constant. That is, the liver will handle only so much alcohol at a time, about a third of an ounce of *pure* alcohol each hour.

We have said that before alcohol affects your body in an observable way, it affects your judgment. This is borne out by the lines you hear from people who try to justify their overindulgence in alcohol. Here are a few of them that you may have heard. Recite them out loud, using an argumentative tone, as though someone had just made a comment on your consumption.

"I drive better when I'm drunk; I'm more careful."

"One more isn't going to hurt my driving."

"Leave me alone. I'm just having a good time."

"I'm okay. I don't even feel it yet."

"I've been a lot drunker than this and drove okay."

"I know my limit. Get off my back."

"Who do you think you are, my *mother*?"

"If I feel like I've had too much, I'll let you drive."

"Hey, lighten up! It's only beer!"

Remember that figure we mentioned a while ago, the .6 ounce of pure alcohol contained in each can of beer, glass of wine or mixed drink? That amount of alcohol will be detoxified in about two hours. If you have no more than one drink per hour, your BAL will remain fairly steady. Your liver will be getting rid of the alcohol at about the same rate you're putting more in. But how many people do you know who drink no more than one drink per hour?

Okay, so you, Kathy and Bob are all drinking your different drinks at your different rates, with your different tolerances for alcohol, based on the factors we've just listed. What is the stuff doing inside your bodies?

Internal workings: First, it's a liquid, which is absorbed directly through the stomach walls, into the bloodstream, and to the brain.

Alcohol is a general depressant of the central nervous system. As a depressant, it slows everything down. One of the first things it affects is your judgment, which accounts for why so many people don't seem to know their limit on intake. If the intake gets high enough, your balance and muscle control will be adversely affected. Extremely high levels of alcohol in the bloodstream can cause death from respiratory paralysis.

Since, as we've said, the liver can handle only so much alcohol at a time, and since people usually drink at a faster rate than the liver can handle, the alcohol gets dumped into the bloodstream and it flows around creating its own special problems.

Let's say you weigh 160. Our BAL table shows that three beers within one hour (on a full stomach) will raise your BAC to .05. That's less than the level of legal intoxication, but we think you would notice the effects. Another beer in a short time will further raise the BAC to .08. Meanwhile, your liver is taking care of enough alcohol to lower the BAC by .015 an hour. As you can see, you lose ground against drunkenness if you drink more than one beer per hour.

If you weighed as much as 200 pounds, you'd still have to have less than one beer per hour to hold the BAC at a constant level. The smaller you are, the less you can handle in any given amount of time. Now we ask you again, how many people do you know who drink that slowly?

The idea is to keep yourself at some level below .1 BAL, the lower the better. Generally, between .01 and .05, you'll feel near normal, with some loss of restraint and concentration. Between .05 and .1 (considered "impaired"), the judgment and vision will be affected. At .1 (legally intoxicated), your coordination and reaction time are affected.

At least in theory. In fact, there is some variance in the way people react to alcohol. Some people will show the effects at much lower concentrations than .1, and some people may show no marked outward signs of intoxication at .1.

Let's take a closer look at the effects of drinking. Our example is a 160-pound airman who is having a few beers with friends. He has had a full meal beforehand. After one or two cans, his skin flushes, his inhibitions are beginning to disappear, his heart speeds up and he gets happy. He's okay, but it will take two to four hours before the alcohol has left his body. After three beers, his judgment is slower, and his coordination is affected. He's still not drunk by the legal definition, but he may not be a safe driver.

The man takes the first drink, | The drink takes the second drink, | The third drink takes the man.

(Old proverb equally applicable to women)

HAVE A COLD ONE!!

One of the things that bothers us about beer is its social acceptability. It's taken to be so harmless that people don't worry about having a couple of cans and then driving. Beer is considered okay at just about any time and any place.

A man and his wife go out and play a couple of sets of tennis. They

By five beers, his vision is blurred, his speech is slurred, and his reaction time is slow. He is now at BAL .1, the legal definition of drunkenness. Depending on how quickly the beers are consumed, this state can be reached within one hour.

Does this mean he could drive safely up to this point, and five is his limit? Well, certainly he shouldn't have any more, but we don't want to suggest that he could get in his car at four beers and get home in one piece.

The National Highway Traffic Safety Administration estimates that his chances of having an auto accident are *six times greater* at BAL .1 than they are when he's sober. That means at some lesser BAL, his chances are five times greater. We don't like the odds.

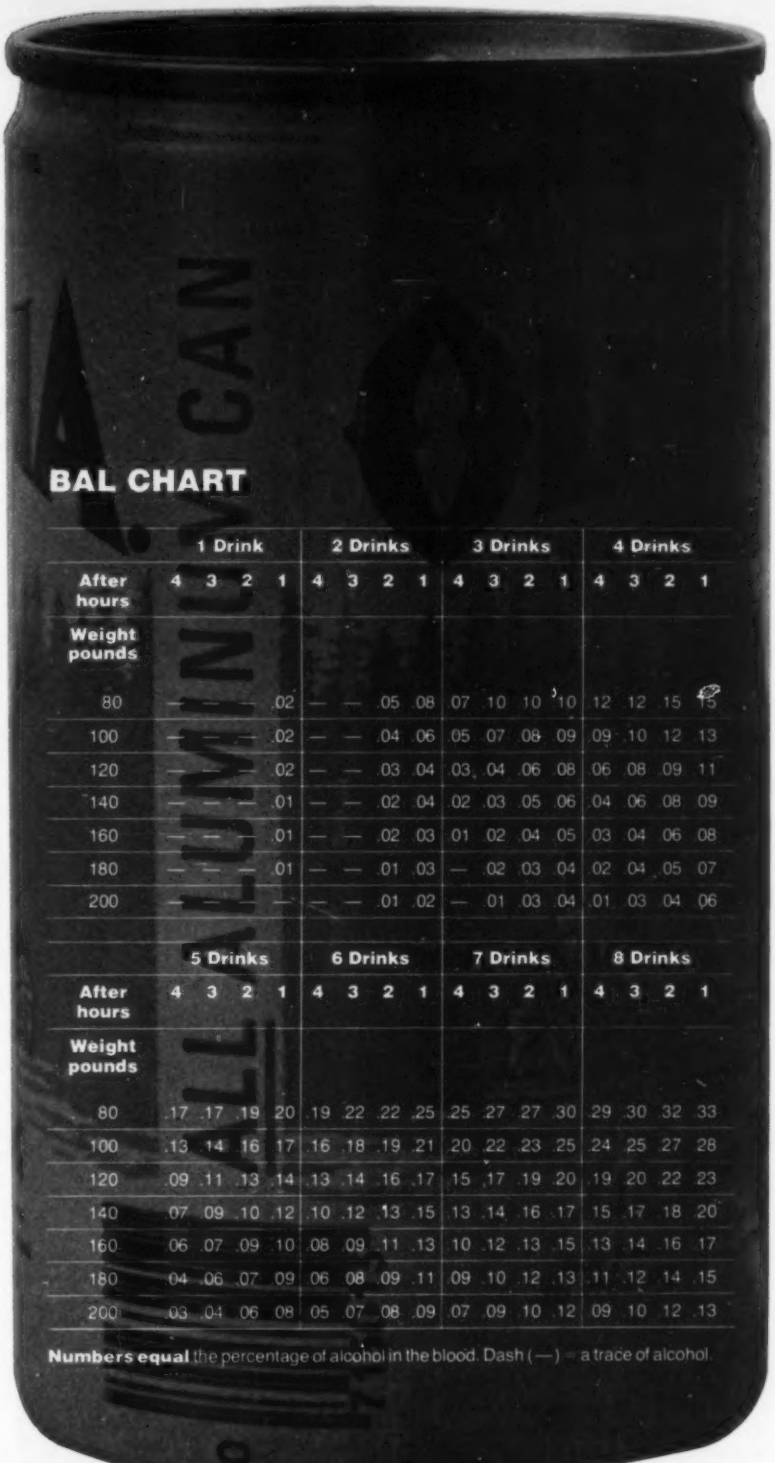
Another figure we don't like is the incidence of alcohol involvement in fatal traffic accidents. It usually runs at about half of the total each year. The American Automobile Association reports an estimate of 20,000 people who will die in alcohol-related accidents in 1980. Unfortunately, this is probably conservative.

Responsible drinking: You can't prevent drunk people from being on the road, but you can make sure you're not one of them. The way to do that is through responsible drinking. Responsible drinking requires you to exercise your mature judgment *before* you take the first sip.

First, decide that it isn't cool to be drunk. Set a limit to the amount you will drink and stick to it. If you set a limit of three beers at a party and then you feel sober enough to have another, remember your judgment has probably been affected and stop at the three. This sounds easier than it actually is. The firm resolve you had when the

continued

decide to cool off for a bit before returning to the courts. They go to their portable ice chest and get out the beer. Nothing is considered odd about that. But what would be the comments if they instead pulled out a bottle of scotch and some ice cubes? "Hey! Those two must be some kinda alcoholics!"



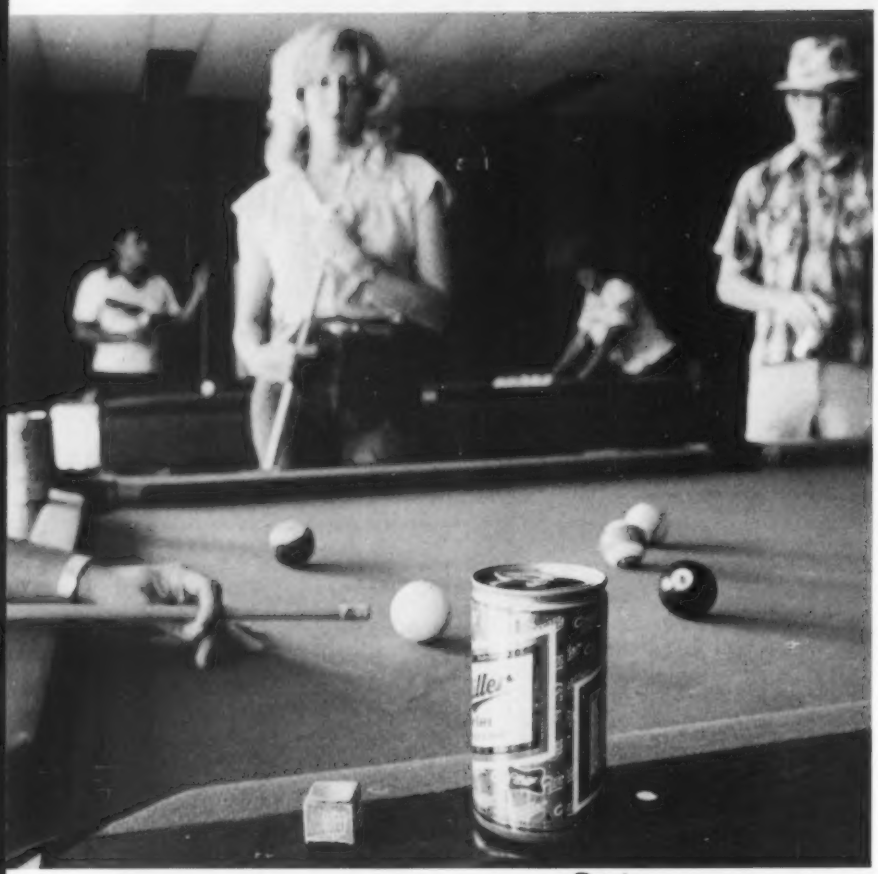
BAL CHART

	1 Drink				2 Drinks				3 Drinks				4 Drinks			
After hours	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
Weight pounds																
80	—	—	—	.02	—	—	.05	.08	.07	.10	.10	.10	.12	.12	.15	.15
100	—	—	—	.02	—	—	.04	.06	.05	.07	.08	.09	.09	.10	.12	.13
120	—	—	—	.02	—	—	.03	.04	.03	.04	.06	.08	.06	.08	.09	.11
140	—	—	—	.01	—	—	.02	.04	.02	.03	.05	.06	.04	.06	.08	.09
160	—	—	—	.01	—	—	.02	.03	.01	.02	.04	.05	.03	.04	.06	.08
180	—	—	—	.01	—	—	.01	.03	—	.02	.03	.04	.02	.04	.05	.07
200	—	—	—	—	—	—	.01	.02	—	.01	.03	.04	.01	.03	.04	.06

	5 Drinks				6 Drinks				7 Drinks				8 Drinks			
After hours	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
Weight pounds																
80	.17	.17	.19	.20	.19	.22	.22	.25	.25	.27	.27	.30	.29	.30	.32	.33
100	.13	.14	.16	.17	.16	.18	.19	.21	.20	.22	.23	.25	.24	.25	.27	.28
120	.09	.11	.13	.14	.13	.14	.16	.17	.15	.17	.19	.20	.19	.20	.22	.23
140	.07	.09	.10	.12	.10	.12	.13	.15	.13	.14	.16	.17	.15	.17	.18	.20
160	.06	.07	.09	.10	.08	.09	.11	.13	.10	.12	.13	.15	.13	.14	.16	.17
180	.04	.06	.07	.09	.06	.08	.09	.11	.09	.10	.12	.13	.11	.12	.14	.15
200	.03	.04	.06	.08	.05	.07	.08	.09	.07	.09	.10	.12	.09	.10	.12	.13

Numbers equal the percentage of alcohol in the blood. Dash (—) = a trace of alcohol.

Use this chart as a guide to tell you how much you can drink. The chart supposes that you've eaten, and are drinking an "average" drink. BALs for people with empty stomachs, and for those drinking more potent drinks (martinis, manhattans, "doubles," and the like) will be higher.



Beer is found everywhere, when people are playing . . .

. . . And also when they're working.

FABLES AND OLD DRINKERS' TALES

There are probably as many misconceptions about alcohol as there are brands of beer. Some of them are funny, and some are dangerous. These are a few of the ones we hear most often.

"Switching drinks will make you more drunk." Not true. You'll be just as drunk if you stick with beer all night as you would if you switched to wine. You'll get drunker by drinking *more*, no matter what's in the glass. Alcohol is alcohol. You may get sick, but not drunker.

"Beer is a thirst quencher." Drinking a cold beer may cool you off, but it will really *increase* your thirst. Alcohol causes a loss of fluids from the body, by its irritating effect on the kidneys. And that'll only make you want to drink more. Stick with water for thirst-quenching.

"Beer has nutritional value," Yes, but only when compared to distilled alcohol. Beer has a little potassium, calcium and phosphorous, but mostly it has calories. You'd do better eating a celery stalk for vitamins and minerals.

"Coffee will sober you up." No way. Your body will sober itself up, but that'll take time—remember what we said about the liver. Coffee will stimulate a drunk, but it'll only wake him up. He'll still be drunk.

"A cold shower will sober you up." The same story here. You will not be a stone-cold-sober person, you'll be a wet, cold drunk. There are other miracle sober-ups, but they all have one thing in common—they don't work.

"Alcohol is a stimulant." As we've said, alcohol is a depressant. It depresses everything from the thinking process to the reaction time. The stimulant idea comes from alcohol's first effect. The first thing alcohol does is make people more talkative and active—they say and do things they ordinarily wouldn't. What this means is that alcohol first depresses the inhibitions. As more alcohol is consumed, it affects muscle control, coordination and balance.

"I can tell when I've had too much to drive safely." No, we don't think so. In addition to affecting your inhibitions, alcohol affects your judgment as one of the first things. You may feel perfectly in control but have reaction times that are too slow for safe driving. The little tests we mentioned may be of some help. Also, a friend is a better judge than you of your ability to drive, but only if he or she *hasn't* been drinking.

party started will be easily put aside after you have had a drink or two.

Eat something before you drink, or along with it. The food, as we explained, will slow the absorption rate of the alcohol.

As you drink, pace yourself. Drink at a slow rate, the slower the better. Don't get into "chugging contests;" that's worse than kid stuff, it's stupid.

Once you've reached your pre-set limit, stop. Then wait for a while before you go out to your car. Play some pool, eat and talk with friends, maybe go for a walk. But make sure you're safe to pilot a car before you put the key in the ignition.

If you go to a party with a group, like your friends Bob and Kathy in our example, there's a simple way to handle the driving problem. Have Bob confine his drinking to soft drinks. That way, he'll be completely sober to drive you and Kathy home after the party. Or you could be nice and offer not to drink yourself.

If you are by yourself at the party and feel you're impaired, ask someone else to drive you home. Another option is to stay where you are and sleep there.

Self testing: There are a few simple tests that might help you decide if you're too drunk to drive. One is called "Romberg's Test." To do this, stand with your eyes closed, your feet together and your arms held straight out to your sides at shoulder height. Hold the position for 30 seconds. If you sway slightly at the shoulder level, you're a little unstable and should wait a while before going. If you sway at the ankles, you're really unstable. If you sway so far that you have to stop yourself from falling, forget it. Have someone else drive, or sleep over.

Another test is to drop some small objects, like four or five matches, on the floor so that they fall close together. Try to pick them up with one hand and put them on the table. If you can do it easily on the first try, you're probably not badly intoxicated. (Wait a while anyway, though.) If you fumble around or drop any of the matches, you're getting drunk.

A third test is counting backwards. Pick a number over 90 and count backwards by subtracting three ("98, 95, 92, 89," etc.). If you make mistakes, you're showing signs of impairment.

But better than these tests is to ask a sober friend to check you out. He's in a better position to make a sound judgment.

"It's only beer"? We can't state it too strongly—beer is alcohol, and alcohol plays havoc with your driving ability. Alcohol impairs the ability to judge distances between stationary objects and also between moving objects. Alcohol lessens the ability of the eyes to adapt to dark. Alcohol lengthens the time necessary for your eyes to recover from glare. Alcohol blurs your vision. Alcohol slows your thinking process. Alcohol slows your reaction time to sudden dangers.

No, we can't state it too strongly.

Jeri Rood

We don't think the beer will help him get his car repaired. However, we'd rather see him drinking when he's working on it than when he's driving it.

WATER AS A MIXER

You've heard of "drowning your sorrows" in a drink. How about the chance of just simply *drowning*?

Driving isn't the only thing not to mix with alcohol. Water is a bad mixer—at those times when the alcohol is on the inside of the body and the water is on the outside.

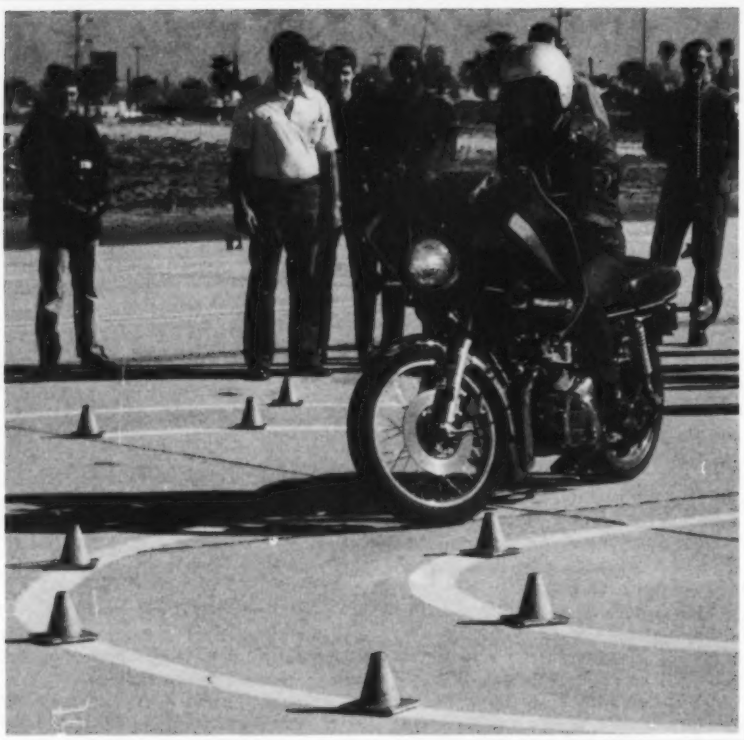
Drownings are one of the major causes of death among military personnel, and alcohol is often a factor in those deaths. Through July, the Air Force lost 22 people in drownings in 1980. In five of the cases, alcohol was involved; alcohol involvement could not be determined in four others.

The mixture of water and alcohol can be deadly. Water has 23 times more cooling power than air. Alcohol also has a lot of cooling power because it causes a loss of body heat. The combination of the two can cause severe cramping of the muscles, and drowning.

Obviously, those who plan to go swimming should skip the beer. But another group who should stay sober are fishermen. Even though they're in a boat, they shouldn't assume they won't get wet. Boats often tip over. An angler who's spent the afternoon polishing off a six-pack would make a lousy swimmer.

EDUCATION is the KEY

By SSgt SONNY HIGHAM
Davis-Monthan AFB, Ariz.



Evaluators and other riders watch alertly while a student puts his bike through the paces.

While the motorcycle accident rate continues to spiral worldwide, the accident rate at Davis-Monthan AFB, Ariz., has significantly decreased over the past three years. This is due primarily to the education given through the base's motorcycle safety course to the ever-increasing number of motorcyclists taking advantage of Tucson's nearly perfect year-round weather.

The course, sponsored by the Motorcycle Safety Foundation, was introduced at this Tactical Air Command base in July 1977. Since then, more than 1,600 motorcycles have been registered on the base; 150 of them were in reportable accidents. However, only two of these accidents involved the more than 400 graduates of the base's 16-hour basic motorcycle safety course—a less-than-one-percent accident rate.

"Motorcycle accidents can be prevented," says SSgt George Johnston, chief instructor of the base's motorcycle safety course. "Education is the key to safe motorcycle riding," he explains.

Before operators can register a motorcycle on Davis-Monthan, they undergo a motorcycle-handling evaluation given by a qualified instructor. If the instructor feels the operator is qualified, the rider can move on to the advanced riders course, a recent addition to the safety program designed to give intermediate riders the opportunity to polish and improve their riding skills.

If riders do not meet the basic requirements of the riding evaluation, they are scheduled for the 20-hour basic motorcycle safety course taught in five four-hour sessions.

The basic course provides riders with the knowledge and training needed to safely and responsibly operate a

Speed and control are the most important parts of keeping the motorcycle on course through this narrowing path.

Several riders are put through a weaving maneuver at the same time. This requires concentration on the riders' part because they have to watch out for cones as well as other drivers.

The range where riders learn their driving techniques includes much more than the standard "straight line" of obstacles to weave in and out of, as evidenced by this layout of cones and the rider's maneuver.

Photos by TSgt BEN H. JOHNSON

motorcycle. During the course, riders gain knowledge of basic motorcycle operation, learn safe riding procedures, experience safe and skillful motorcycle operation in traffic situations and learn to make good riding decisions.

The course is a "hands on" environment – the students are presented the information in the classroom while the actual learning is accomplished through riding. For those who want to learn to ride a motorcycle, but don't yet own one, loaners are available.

Protective gear and its use is stressed throughout the course with helmets being one of the most heavily stressed. In addition to wearing a helmet, the Motorcycle Safety Foundation recommends riders wear suitable eye protection such as goggles or face shield and proper clothing including long pants and a jacket (preferably leather), leather gloves and boots.

Following all the classroom instruction, riders are taken to the practice riding area where they learn basic motorcycle maneuvers – turning, changing gears and braking. The student is then ready to learn basic street riding skills which teach riders to identify potential hazards and take the necessary action to avoid them. This is possibly the most important phase of the course.

"When you're involved in an accident on a motorcycle, you're going to get hurt," says Johnston. "There's no such thing as a fender bender on a bike."

The course also addresses riding under less than ideal conditions, emergency braking and other more advanced riding techniques.

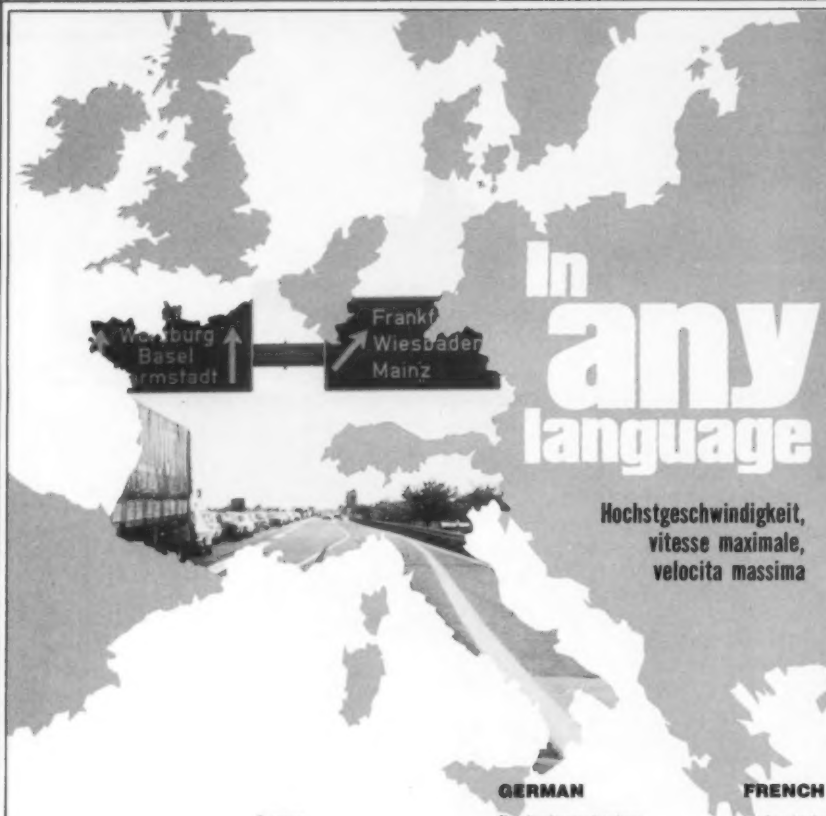
Since the course's inception at Davis-Monthan three years ago, the base has seen an average 40 percent reduction in the number of reportable mishaps involving motorcycles.

While education may be the key to safe motorcycle riding, the success of the entire program still lies with the riders and how much of the learning they put into practical usage. Johnston, though, remains optimistic about the continued success of the program.

"There's really no way, short of sleeping, that a person can go through the basic course and not learn something that will be useful down the road somewhere. That something may save a life," he explains.

Riders who pass the initial evaluation attend an eight-hour advanced riders course, which is also taught both in the classroom and "on the road." The first hour of the course is devoted to learning licensing procedures, safe motorcycle operation, wearing of protective gear and a general introduction to the course. The final hour deals with preparing for trips, how to load the bike and the selection and installation of accessories.

The remainder of the time is spent on the riding range and in the classroom, improving and polishing riding skills through open discussion and actual riding.



In any language

Hochstgeschwindigkeit, vitesse maximale, velocita massima

Overseas assignments include travel, new surroundings, new customs, and more often than not, unfamiliar languages. Fortunately for most of us, English is a widely spoken second language in many countries. Yet there are times when most of us would feel more comfortable if we could speak in our hosts' language.

The following guide is provided to help with automotive terminology in German, French and Italian. If you aren't assigned in one of the countries that speak these languages, but own a car manufactured in Germany, France or Italy, you may want to pay attention, also. Not only may you find some of the terms helpful when trying to read literature about your vehicle, but you may need a term or two to exchange ideas with a factory-trained mechanic someday.

Keep tuned to future DRIVER issues for articles that deal with communicating automotive terminology with British subjects as well as translations of *autospeak* (the language of auto freaks) into understandable words.

	GERMAN	FRENCH	ITALIAN
A-arm	Dreieckquerlenker	levier trianguleˆ transversal	braccio triangolare
Acceleration	Beschleunigung	accélération	accelerazione
Air cleaner	Luftfilter	filtre à air	filtro aria
Air suspension	Luftfederung	suspension pneumatique	sospensione pneumatica
Anti-roll bar	Kurvenstabilisator	stabilisateur transversal	stabilizzatore transversale
Automatic adjustment	automatische Nachstellung	autorégleur (à réglage automatique)	regolatore automatico
Automatic transmission	Getriebeautomat	boîte automatique	cambio automatico
Axle	Achse	essieu	asse
Back-up lights	Ruckfahrlampe	phare de recul	luce retromarcia
Battery	Batterie	batterie	batteria
Bearing	Lager	coussinet	cuscinetto
Bodywork	Karosserie	carrosserie	carrozzeria
Body, interior	Interieur	Intérieur	Interno
Brake	Bremse	frein	freno
Bumper	Stosstange	pare choc	paracolpo
Camshaft	Nockenwelle	arbre à cames	albero a camme
Camshaft drive	Nockenwellenantrieb	entraînement de l'arbre à cames	comando dell'albero a camme
Carburetor	Vergaser	carburateur	carburatore
Central	Zentral	central	centrale
Chain	Kette	chaîne	catena
Chassis	Fahrgestell	chassis	autotelaio
Chassis lubrication	Chassisschmierung	graissage au châssis	lubrificazione telaio
Choke	Choke	choke	choke
Chrome plated	verchromt	chromée	cromato
Clutch	Kupplung	embrayage	frizione
Coil spring	Schraubenfeder	ressort hélicoídal	molla elicoidale
Compression ratio	Kompression/Verdichtung	taux de compression	rapporto di compressione
Console	Mittelkonsole	console centrale	mensolina centrale
Convertible	Cabriolet	cabriolet	spider/cabriolet
Coupe´	Coupe´	coupe´	coupe´
Crankshaft	Kurbelwelle	vilebrequin	albero motore (colla d'oca)
Crankshaft bearings	Hauptlager	paliers de vilebrequin	supporti dell'albero motore
Crossmember	Traverse	traverse	traversa
Curb weight	Leergewicht	poids à vide	peso a vuoto

	GERMAN	FRENCH	ITALIAN
Cylinders	Zylinder	cylindres	cilindri
Cylinder head	Zylinderkopf	culasse	testa cilindri
Diesel engine	Dieselmotor	moteur Diesel	motore Diesel
Dimensions	Dimensionen	dimensions	dimensioni
Disc brake	Scheibenbremse	frein à disques	freno a disco
Displacement	Hubraum	cylindrée	cilindrata
Distributor	Verteiler	distributeur	distributore
Door	Türe	porte	porta
Drum brake	Trommelbremse	frein à tambours	freno a tamburo
Dry	trocken	sèche	secco
Dry sump lubrication system	Trockensumpfschmierung	graissage à carter sec	lubrificazione a carter secco
Dual braking system	Zweikreisbremse	frein à double circuit	freno a doppio circuito
Empty	unbelastet	à vide	a vuoto
Engine	Motor	moteur	macchina
Engine lubrication	Motorschmierung	graissage du moteur	lubrificazione del motore
Equipment	Ausrüstung	equipement	equipaggiamento
Fan belt	Ventilatorriemen	courroie de ventilateur	cinghia del ventilatore
Final drive	Achsantrieb	couple conique	coppia conica
Floor shift	Stockschaltung	levier central	cambio a cloche
Fog lights	Nebellampe	phare anti-brouillard	proiettori antinebbia
Foot brake	Fussbremse	frein à pied	freno a pedale
Four-wheel brakes	Vierradbremse	frein sur 4 roues	freno su quattro ruote
Four-door sedan	Sedan	berline 4 portes	berlina 4 porte
Front	vorn	AV	anteriore
Front suspension	Vorderradaufhängung	suspension AV	sospensione anteriore
Front wheel	Vorderräder	roue AV	ruote anteriore
Front wheel drive	Frontantrieb	traction AV	trasmissione anteriore
Fuel consumption	Benzinverbrauch	consommation d'essence	consumo di carburante
Fuel pump	Benzinpumpe	pompe à essence	pompa d'alimentazione
Fuel supply	Treibstofförderung	alimentation	impianto
Fuel tank capacity	Benzintank	réservoir d'essence	serbatoio del carburante
Fully synchronized	Vollsynchrongetriebe	toutes synchronisées	completamente sincronizzato
Gasoline	Benzin	essence	benzina
Gasoline engine	Benzinmotor	moteur à essence	motore a benzina
Gears	Zahnrader	pignons	ingranaggi
Gear ratios	Untersetzungen	rapports de démultiplication	rapporti di demoltiplicazione
Gearshift lever	Schalthebel	levier de vitesses	leva di commando
Gearshift lever on the steering column	Lenkradschaltung	levier au volant	leva sotto al volante
Ground clearance	Bodenfreiheit	grade au sol	altezza minima da terra
Halogen lights	Halogenlampe	projecteur à halogène	proiettori allo jodio
Height	Höhe	hauteur	altezza
Hood	Haube	capote	capote
Ignition	zuendung	allumage	accensione
Independent suspension	Einzelradaufhangung	suspension à roues indépendantes	sospensione a ruote indipendenti
Injection	Einspritzung	injection	iniezione
Instrument panel	Armaturenbrett	tableau de bord	quadro di bordo
Length	Länge	longueur	lunghezza
Limited-slip differential	Differentialbremse	différentiel à mouvement limité	differenziale sorrimento limitato
Lubrication points	Schmiernippel	graisseurs	ingrassatori
Maintenance	Unterhalt	entretien	manutenzione
Manual transmission	Schaltgetriebe	boîte de vitesses classique	cambio di velocità
Maximum loaded weight	Gesamtgewicht (zulässiges)	poids total (admissible)	peso totale (ammissibile)
Maximum speed	Höchstgeschwindigkeit	vitesse maximale	velocità massima
McPherson strut	Federbein	jambre elastique	tirante elastico
Mechanical	mechanisch	mécanique	meccanica
Muffler	schalldaempfer	silencieux	silenziatore
Octane requirement	Oktanbedarf	exigence en octane	numero di ottano minimo
Oil	Oël	huile	olio
Oil capacity, crankcase	Oelinhalt	capacité du carter	contenuto della coppa
Oil capacity, refill	Wechselmenge	capacité (vidange)	quantita per il cambio olio
Oil change	Oelwechsel	vidange	cambio dell'olio
Oil cooler	Oelkuhler	radiateur d'huile	radiatore dell'olio
Oil filter	Oelfilter	filtre à huile	filtro dell'olio
Optional equipment	Sonderausrüstung	equipement facultatif	equipaggiamento su richiesta
Overdrive	Schnellganggetriebe	boîte avec surmultiplicateur	cambio con sormoltiplicatore
Overhead	obenliegend	en tête	in testa
Overhead valve	hangende Ventile	soupapes en tête	valvole in testa
Parking brake	Feststellbremse	frein d'immobilisation	freno di parcheggio
Performance	Fahrleistungen	performances	prestazioni
Piston ring	Kolbenring	segment de piston	anello pintone
Power brake	Servobremse	servo-frein	servofreno

Achtung, Til! Listen to this Yank murder: "Where's the nearest restroom" in German.

continued

in any language

continued

	GERMAN	FRENCH	ITALIAN
Power steering	Servolenkung	servo-direction	servosterzo
Premium gasoline	Superbenzin	supercarburant	benzina super
Puncture	Reifendefekt	crevaison de pneu	scoppio di pneumatico
Pushrod	Stossstange	tige	aste
Rack and pinion steering	Zahnstangenlenkung	direction à crémaillere	sterzo a cremagliera
Radial tires	Gürtelreifen	pneus ceinturés	pneumatici radiali
Radiator	Keuhler	radiateur	radiatore
Rear	hinten	AR	posteriore
Rear axle	Hinterachse	essieu AR	asse posteriore
Rear suspension	Hinterradaufhängung	suspension AR	sospensione posteriore
Rear wheel	Hinterräder	roue AR	ruote posteriore
Rear wheel drive	Heckantrieb	traction AR	transmissione posteriore
Rear window	Heckscheibe	lucarne AR	lunotto posteriore
Rear window defroster	Heckscheibendefroster	dégivreur de lucarne AR	sbrinatore del lunotto posteriore
Recirculating ball steering	Kugelkreislauflenkung	direction à circuit de billes	sterzo a circulazione di sfere
Regular gasoline	Normalbenzin	essence normale (ordinaire)	benzina normale
Reserve	Reserve	réserve	riserva
Rigid (live) axle	Starrachse	essieu rigide	assale rigido
Road speed	Geschwindigkeit	vitesse	velocità
Roadster	Roadster	roadster	roadster
Rocker arm	Kipphebel	culbuteur	bilanciere
Rod bearing	Pleuellager	coussinet de bielle	cuscinetto di biella
Seat	Sitzplatz	place	posto
Semi-elliptic spring	Halbelliptikfeder	ressort semi-elliptique	molla a balestra semiellittica
Shock absorbers	Dämpfung	amortissement	ammortizzazione
Side	seitlich	latéral	laterale
Spark plug	Zuendkerze	bougie	candela
Springing	Federung	ressorts	molleggiamento
Standard equipment	Originalausrüstung	equipement de série	equipaggiamento di serie
Standing ¼ mile	stehende ¼ Meile	le ¼ mille depart arrêté	quarto di miglio da fermo
Station Wagon	Station Wagon	station-wagon/break	station wagon/familiare
Steering	Lenkung	direction	sterzo
Strut	Längslenker	levier longitudinal	puntone
Suspension	Aufhängung	suspension	sospensione
Synchronized	Synchronisiert	synchronisé	sincronizzato
Tank	Tank	reservoir d'essence	riserva
Tailgate	Hecktüre	porte AR	porta posteriore
Tappet, hydraulic (lifter)	hydr. Ventilstössel	poussoirs hydrauliques	punterie idrauliche
Tires	Reifen	pneus	pneumatico
Toothed belt	Zahnriemen	courroie dentée	cinghia dentata
Top gear	oberster Gang	rapport superieur	rapporto superiore
Torque	Drehmoment	couple	coppia
Torsion bar	Torsionsstabfeder	barre de torsion	molla a barra di torsione
Track	Spur	voie	carreggiata
Transmission	Kraftübertragung	transmission	transmissione
Transmission brake	Kardanbremse	frein sur transmission	freno a snodi
Trip mileage indicator	Tagesähler	compteur journalier	contachilometri parziale
Tubeless	schlauchols	sans chambre à air	senza camera d'aria
Turning circle	Wendekreis	diamètre de braquage	diametro di sterzata
Two-door sedan	Coach	berline 2 portes	berlina 2 porte
Two-speed wiper	Scheibenwischer zweistufig	essuie-glace à deux vitesse	tergicristallo con due velocità
Torque converter	Drehmomentwandler	convertisseur de couple	convertitore di coppia
Valve	Ventil	soupape	valvola
Valve gear	Ventilsteuerung	commande des soupapes	comando delle valvole
Weight	Gewicht	poids	peso
Welded	verschweisst	soudé	saldato
Wet	nass	humide	umido
Wheel	Rad	roue	ruota
Wheelbase	Radstand	empattement	passo
Width	Breite	largeur	larghezza
Window	Fenster	fenêtre (glace)	finestra
Windshield	Frontscheibe	pare-brise	parabrezza
Windshield washer	Scheibendusche	lave-glace	lavacristallo
Worm and nut steering	Lenkung mit Spindel und Mutter	direction à vis et écrou	sterzo a vite e dado
Worm and roller steering	Lenkung mit Schnecke und Rolle	direction à vis et galet	sterzo a vite e rullo
Worm and sector steering	Lenkung mit Schnecke und Sektor	direction à vis et secteur	sterzo a vite e settore
X-frame	X-Rahmen	cadre avec traverse en X	telaio ad X

little WHITE lies that will kill us .....

They are called "little white lies." People live with them and by them. Everybody uses them. They make friends and enemies. They eat money faster than inflation. And we all die a little with each one we are told—and, even more so, with each one we tell.

In the world of driving, maintaining and purchasing vehicles there are numerous "little white lies." DRIVER has prepared this list of 75. How many have you heard before? And how many have you used?

1. This won't take a minute.
2. I'll be honest with you.
3. To make a long story short.
4. It'll be ready tomorrow.

5. I can get it for you wholesale.
6. You can't get drunk on just one.
7. I know I said I wouldn't, but I couldn't stop myself.
8. My car wouldn't start this morning.
9. He did it.
10. If anything goes wrong with it, bring it back.
11. It's still under warranty.
12. Your credit is better than you think.
13. It's safer than walking.
14. Sure you can afford it.
15. But everybody will be there.
16. Just two beers—I swear.

17. I know when I've had enough.
18. They don't make them like they used to.
19. That's one I owe you.
20. I can pay you on payday.
21. It wasn't that way when I used it.
22. The sun was in my eyes.
23. Black ice—it must have been black ice.
24. I wish I could buy this one myself.
25. We're losing money on this deal.
26. Someone else must have moved it.

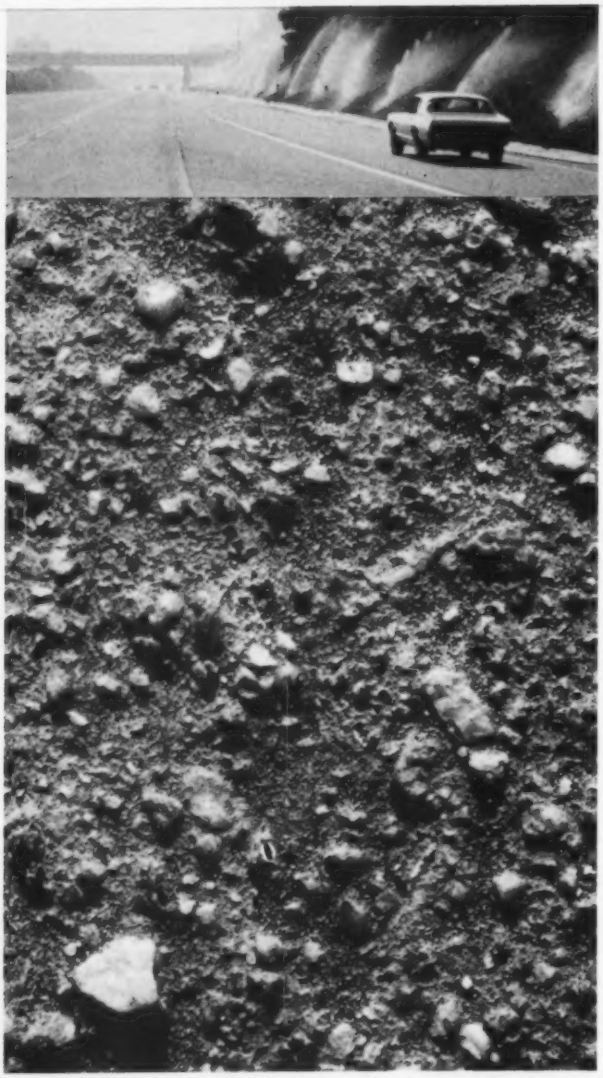
27. Yes I did come to a full stop!
28. No problem. We'll work out the payments.
29. It wasn't my fault.
30. It'll only be nine percent interest.
31. Of course I didn't forget.
32. Yours is next in line.
33. I'll fix it next weekend.
34. I don't need to ask at a gas station. I know where I am.
35. I'm in no hurry.
36. Of course I'm sure.
37. I'll do it just for you.
38. We'll give you the "house deal."
39. All looks the same to me.
40. Nobody will ever notice it.
41. Trust me.
42. You didn't act drunk.

43. We will cooperate fully.
44. I don't look at the pictures; I buy it for the articles.
45. I won't break it.
46. Of course I remember you.
47. I'll see what I can do.
48. That's just an estimate, of course, but it shouldn't come to much more.
49. I wasn't driving too fast for conditions.
50. I wasn't driving too fast for my condition.
51. The customer is always right.
52. I don't need this job.
53. I had the right of way.
54. I wouldn't lie to you.
55. I didn't see 'em.

56. I was following the two-second rule.
57. Not my job.
58. We'll have it ready for you in 30 minutes . . . one hour . . . this afternoon . . . tomorrow . . . this week . . . by the end of the month. . . .
59. That's our cost.
60. Of course we have a discount for _____.
61. We really did think of 75 little white lies but the art director didn't leave room for all of them.

DRiVER Road Tests

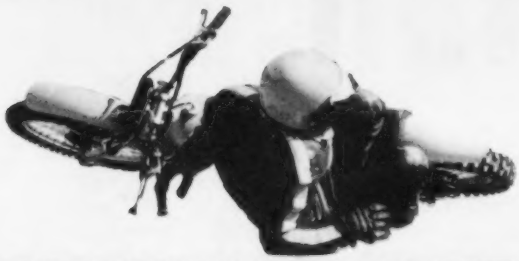
"Good afternoon, ladies and gentlemen. The photographs in front of you are the highest resolution shots yet sent back to us from the planet Venus by the Munkacsy interplanetary probe . . ."



"The boulder in this picture is the size of the Lincoln Memorial . . ." Actually, it would just *feel* that way if it were embedded in your elbow. This is an urban freeway.

"On the plain 'Ishtar Terra' the landscape is rugged, with many rocks and occasional craters from meteors . . ." This is really an asphalt road, somewhat worn by vehicle travel. It would be considered smooth to the driver of an automobile.

No, we're kidding. These are blow-ups of some road surfaces you might encounter as you ride your motorcycle. Obviously, even a smooth, paved road is not so smooth when viewed up close. Your protective clothing can prevent many a road burn.



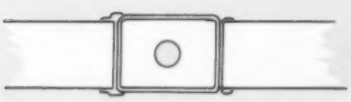
"The Moon-like area of 'Terra Boomdeay' shows erosion by wind . . ." Yes, you're right. It's a dirt road, with tire marks. It doesn't look very smooth up this close, either.

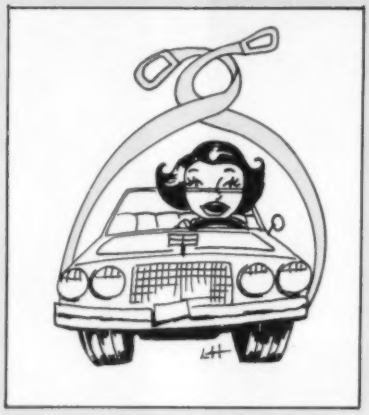
"This area is very rocky. Any manned expedition would have to search elsewhere for a suitable landing spot . . ." This is the gravel covering for a new asphalt road. It would be even less comfortable than the worn asphalt.

what's that funny BELT-THING for?

We all know what the automobile's seatbelts were designed for—to hold the passengers in place, in case of a quick stop or an accident. However, in practice many people don't seem to have any idea what they're for. Why else would the studies show fewer than 15 percent of the population buckles up? Here are a few of the responses we think we'd get if we asked.

"The seatbelts are those things you sit on to make you uncomfortable on a long drive. That way, you stay awake and alert!"





"The seatbelts are decorative. The chrome tongues look very nice hanging outside the car when you close the door."

"Seatbelts? They're those bands you strangle yourself with when you try to put the groceries in the back seat."

"Seatbelts are part of a game. It's loads of fun to dig around under the stale popcorn and old newspapers with one hand looking for the belts as you drive up to the gate at the base."

"Seatbelts are passenger assist straps. People in the back seat can grab the so-called "shoulder belt" to help them out of their seats.

click click click ? TRY-THIS-TRICK

When you turn the key to start your engine and your car just clicks, the problem may be a discharged battery. Or it could be nothing more than corrosion resistance on the battery cables.

The accumulation of corrosion causes high resistance to prevent the flow of current to and from the battery. A temporary remedy, which may get you started, is to gently twist the cable terminal clamps. Make sure all accessories are off before attempting this. A spark could cause an explosion. Be careful not to twist the post loose from the battery!

Twisting the cable terminals may help make contact between the cable and the battery terminal. Should you make contact, enabling you to start your engine, the problem should be corrected as soon as possible by a good cleaning of the battery terminals and cable clamps. Your repairman can do the job properly in a matter of a few minutes. If you are a do-it-yourselfer, the Car Care Council suggests this procedure:

1. Pick up the following items from your auto supply store to make the job easier and safer: a cable puller and pliers; a terminal and clamp cleaning tool and, most important, safety goggles, if you don't already have them in your tool kit. Wear your goggles and wear old clothes. Also read the warning battery manufacturers put on the battery. It usually is as follows:

DANGER
BATTERIES PRODUCE EXPLOSIVE GASES, KEEP SPARKS, FLAME, CIGARETTES AWAY. VENTILATE WHEN CHARGING OR USING IN ENCLOSED SPACE. THIS BATTERY CONTAINS SULFURIC ACID WHICH CAUSES SEVERE BURNS. IF ACID CONTACTS EYES, SKIN OR CLOTHING, FLUSH WELL WITH WATER. FOR CONTACT WITH EYES GET IMMEDIATE MEDICAL ATTENTION.
KEEP AWAY FROM CHILDREN

2. Remove the battery cables. Start with the negative (−) or grounded cable first to prevent sparks resulting from accidentally grounding of the positive terminal.

3. Next remove the positive (+) cable from the battery terminal.

4. Remove the battery hold down bracket (note the position of the terminals) and remove the battery from the vehicle.

5. Place the battery on the floor near a drain and wash it with a solution of baking soda and water. DO NOT allow any solution to enter the battery cells. After cleaning, rinse the battery with clear water.

6. Next inspect the battery tray and remove all signs of corrosion using the baking soda and water, then flush with clean water, dry and paint the tray.

7. Inspect the cables and terminals. Replace a cable when it appears unfit for further service. When cables pass your inspection, use your cable cleaning tool and polish the terminals until they are bright and shining.

8. Clean the battery posts. Be sure they are bright and shining. Then place the battery back in its tray, making sure the terminals are in the proper position.

9. Install battery hold down bracket and battery cables. Start with positive (+) first. The negative (−) grounded cable is connected last.

NOTE: If your battery appears to have a lot of corrosion on its cover and you need to add water often, the cause may be a high charging system voltage. Have the voltage regulator setting checked.

Protection and the

There you are charging down the gym floor. Your team has just stolen the ball and you've taken the pass on the run toward the hoop unopposed. Suddenly those easy two points disappear into a burning slide on the hardwood floor. You may have lost your footing or been tripped, but it doesn't matter because the disappointment of the lost score is overwhelmed by burning pain. Ouch! As you well remember, that really smarts!!!

No matter how good they are, all basketball players know that they are going to go down from time-to-time. Even the NBA pros know this.

As a two-wheel operator you should have developed the same attitude. Someday, no matter how good you've become, you and your machine can go down. It may not be your fault, but that won't make it easier. If you could plan this fall it wouldn't be called an accident. (Besides, if you could plan it, you probably would plan not to have it.) However, since you can't plan this accident, you must wear as much protective gear as you can to lessen the painful results of a spill.

Now, as you are already doing everything you can to protect your body in case of an accident, you won't be overly concerned with some new emphasis in Air Force regulations, will you?

That fragile computer that rests between your shoulders needs more

Motorcycle windscreens aren't considered eye protection when riding on Air Force installations. Motorcycle operators must wear approved eye protection such as a face shield or goggles.

two-WHEELER

protection than any other part of your body, so you enclose it in a case of special plastics – a helmet. Having bumped your noggin a time or two when growing up, you are well aware that any blow to the head not only hurts but causes some functional problems. Therefore, you want to provide extra protection for your computer whenever traveling faster than a brisk walk. So you welcome the new mandatory moped helmet rule for Air Force installations because you wouldn't ride a moped without a helmet.

Having a high regard for your brain pan you might also be wearing one of the new helmets when riding a bicycle.

In order for your computer to work properly, it has to receive clear inputs. For operating vehicles, the most important inputs are visual. Having had dust or dirt in your eyes on one occasion or another, you know that it not only hurts but also blurs your vision. So you protect your eyes. You protect them on the front, sides, top and bottom with a shatter-proof shield – goggles or a face shield.

As you well know, a windscreen deflects some of the bugs, dust and dirt over your head. Would you believe: high enough to bounce off your helmet? Would you believe: directly into your eyes? Additionally, windscreens create low-pressure areas directly behind them as they move through the air. These low-pressure areas swirl the air in such a way that a lot of the bugs, dust and dirt can be pushed into unprotected eyes. These are all reasons why you don't consider windscreens as eye protection and neither does the Air Force.

So, in your natural attempts to protect your computer and its inputs you've complied with the latest Air Force regulations about operating two-wheeled vehicles. So everybody's happy – especially you, because you're always a step ahead of the latest regulations – and safe.

Moped operators are now required to wear safety helmets when riding on Air Force installations.

tteecc!h!n DOUBLE TECH

Q A

With
TSgt RON LATHROP

I purchased an early-70s economy car a few months back for my wife to get around town in. It had well over 100,000 miles on it but seemed to run OK for its age. A few weeks ago I noticed it had started to smoke very bad. I discovered that my wife (on the advice of the local gas station "kid") had been putting an expensive high-detergent oil in. The oil had done its job and cleaned the inside of the engine. Because of the smoking I felt its days were now numbered to a few. I sold the car. My wife doesn't buy my reasoning. I contend only non-detergent oil should be used in old cars because the sludge helps keep it together. Please advise as I would like my wife to talk to me again.

I had to recheck to make sure your letter wasn't addressed to Ann Landers or Dear Abby.

First things, first. Personally, I would try to redirect the wife's anger with a ploy such as, "The guy who sold us that did a good doctoring job to keep it from burning oil. It was a matter of time before the engine failed, just like it was only a matter of time before it started smoking."

Now to the oil and sludge: I never recommend non-detergent oils. Motor oil has eight basic functions. It must: permit starting and circulate promptly; lubricate and prevent wear; reduce friction; protect against rust and corrosion; keep engine interior parts clean; cool engine parts; seal combustion pressures; and be non-foaming.

The sludge you think of as holding the engine together is actually tearing it apart. Formed when combustion soot and partially burned fuel get past the rings and mix with water in the oil, sludge will clog oil passages and lead to failures of moving parts. Besides sludge interferes with five of the eight basic functions of the oil.

High-detergent oils cling to cylinder walls and bearing surfaces while performing all eight functions. Non-detergent oils can't match detergent oil performance when it comes to protecting against rust and corrosion or keeping parts clean. Besides, if the high-detergent oil pulled enough sludge from the engine to produce sudden oil burning, the days were already numbered before the detergent was added.

Since your wife liked her car, you probably would have been better off having it overhauled than dumping it.

You claimed in the June DRIVER that "maneuverability—except for getting into a tight parking spot—is a product of tires and suspension, not size." If maneuverability means the ability to make sharp turns at a given speed without losing control of the machine, and that is what I believe it means, then maneuverability is a product not only of tires and suspension, but also of mass, velocity and surface conditions. Therefore, it seems to me—and assuming identical tires, suspension, drivers and dry pavement conditions—a small car weighing 2,000 pounds traveling at 50 mph will possess greater maneuverability than a larger car weighing 4,500 pounds moving at the same velocity. Perhaps small car owners can, after all, righteously take heart, though you'll need a physicist or an engineer to properly answer this one.

Not really. I think you'll find a multi-ton tank will cut a sharper corner at a reasonable speed than any car.

But back to the real world. You've said the same thing I did without realizing it. The key came when you "assumed" identical tires and suspension. That's too big an assumption, especially as all vehicles are not created equal in those departments. This is what gets people into trouble with their small cars: assuming that they are more maneuverable just because they are small. It just ain't so.

Granted, it is possible for the small car to be more maneuverable—with the proper suspension and tires. But to assume the smaller vehicle has better control just because it is small is a sure ticket to trouble. And trouble in a smaller vehicle can be bigger than the trouble in large cars when push comes to shove.

How about some information on jamming police radar? There are a lot of service personnel who go on short leaves to cover hundreds of miles by car in a few hours who would find this information very useful in reducing the total expenses on such trips.

Let me see if I understand you. You want a government publication to provide information on clandestine operations so that people can break the law, drive faster than the national speed limit and increase their odds of having an accident—an accident with increased fatal odds because of the increased speed involved. You want a safety publication to test jamming devices against radar? Lots of luck!

Now I have an idea I would like you to consider. It is one result of speeding on the highway, something I like to call "secondary speeding." I think you will agree that the nation's interstate highways can be traveled safely (though not legally) at speeds greater than the current national speed limit. And you might also agree that the posted limits on roads other than freeways are a maximum *safe* limit—because of traffic, intersections and the like. Now think about the speed adjustment you must make when exiting a limited access highway. Slowing from 55 to 45 is not that difficult; dropping down from 70 to 45 is cutting your speed almost in half. The greater the difference in speed, the greater the adjustment and the greater the risk of overdriving, or "speed too fast for conditions."

Therefore, while the interstates may be safer for higher speeds, the speed sensations carried over from the freeways onto other roads can result in driving faster than is actually safe. Which, in turn, leads to accidents. "Secondary speeding" can be a fatal transition from the interstate to an accident.

As for cutting expenses, I think a ticket for speeding is a lot less expensive than an accident. Don't you?

Editor's Note: Double Tech is a question and answer column in which DRIVER will attempt to make clear some of the cloudy subjects in readers' minds. Unlike other automotive magazine Q&A columns, Double Tech doesn't deal with specific questions such as, "Why is my Wink-Snoozymobile hard to start on a rainy morning?" Instead Double Tech fields questions that are of general interest to the majority of our readers. However, when sending questions to Double Tech be sure to include all available information because this will help in finding the correct solution. If you have a question you'd like an answer to, and you feel others could use the knowledge also, send it to:

Double Tech
DRIVER Magazine
HQ AFISC/SEDD
Norton AFB, CA 92409

As with most magazines, DRIVER has a long lead time between writing and publication, so don't be surprised if it takes several months to get a reply.

SSgt Chuck Fuetral takes his hobby stock race car, "The Southern Comforter" around the ¼-mile, semi-banked dirt track at the Grand Forks County Fairgrounds.

IN THE thick OF THINGS

by 2d Lt KATHY STEPHENS
Grand Forks AFB, ND

On Friday nights SSgt Chuck Fuetral is in the thick of things at the Grand Forks County, N.D., Fairgrounds. Last year the thick of things was a seat in the grandstands, but this year it's the seat behind the wheel of an Oldsmobile Delta 88 in the hobby stock races.

For his first year of competition, the 321st Missile Security Squadron member began putting his car together in December 1979 and finished it in May 1980.

"I guess I've spent about 160 hours on it," Fuetral said. "I picked it up from a guy down the street for $75 and I've put about $400 worth of equipment into it."

Several safety items had to be added before the car could race. A roll cage now encases the driver's compartment and a fire wall separates the trunk and fuel tank from the interior. All the glass was removed and the trunk and hood are chained down. A racing-style seat with shoulder harnesses and a three-inch lap belt are the sole creature comforts.

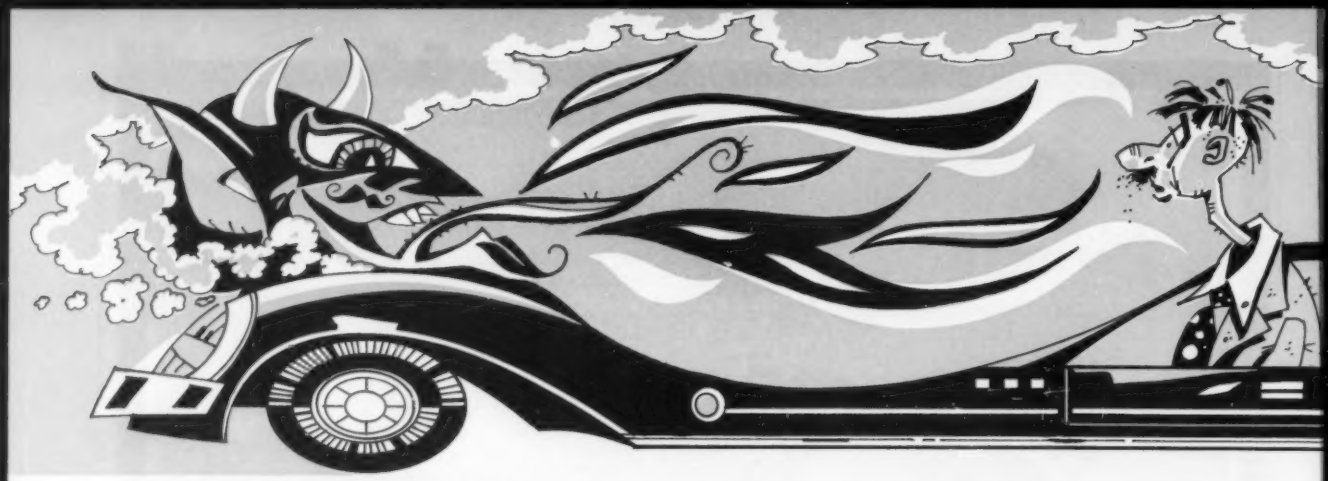
"I worked on it in the base auto hobby shop," explained Fuetral. "The hobby shop had everything I needed to put one together. I also had to write a letter to my commander explaining all the safety features."

Fuetral was understandably nervous during his initial race. "When they start bumping into you," he said, explaining how even this nervousness passed, "you want to bump them right back. I got hit in the rear and it turned me around so I was facing the traffic, and then I got hit again. We were going about 40 mph. If I hadn't had all that safety gear, I imagine I would have ended up somewhere on the hood."

Besides winning $170 in two races, Fuetral got to sign his first autograph after finishing fifth out of five cars in one race. "I told the little boy that I finished last, but he didn't care."

Photos by
Sgt DAVE COLPOYS

Strapped securely into the special racing seat, SSgt Chuck Fuetral has his helmet adjusted by a crewmember before a race. Note the expanse of steel tubing forming the safety cage inside the car.



THE BACKYARD MECHANIC

TROUBLESHOOTING

When an engine overheats the water in the cooling system begins to boil. Steam pressure then forces large quantities of the coolant out the radiator overflow. In turn, this produces more violent boiling and more water loss. In the end there is no coolant left to circulate and all cooling is lost. During this time frame the engine begins to knock and the power falls off. The bearings and other moving parts are then damaged. Engine blocks and cylinder heads often warp and crack under the strains set up by the overheated metal – especially when cold water is added without allowing the engine to cool.

Engine overheating is indicated in several ways. First, of course, is the temperature gauge needle moving into the red zone or that heart-stopping glow from the warning light. Accompanying these visual warnings is a very noticeable engine "ping" and power loss under acceleration. The engine may also diesel (continue to run) for several seconds after the ignition is turned off.

Engine overheating can be the result of incorrect ignition timing, poorly adjusted valves, bad valves, a clogged exhaust system, internal engine mechanical failure or a cooling system failure. The Backyard Mechanic looked at cooling system preventive maintenance in the August '80 DRIVER. With this in mind, troubleshooting the cooling system is the next step.

As with any major engine problems, the first step is to get the vehicle safely stopped and off the traveled portion of the road. Turn off the ignition and allow the engine to cool. Every three or four minutes, rotate the engine a few times with the starter to prevent the rings from sticking.

Always be especially careful when opening the radiator pressure cap. The sudden loss of pressure will produce boiling in the water and a geyser of super-heated fluid. Use a rag to handle the radiator pressure cap because it is very hot. If you do get sprayed with the super-heated water you will need first aid treatment for burns. In addition, you must get any wet clothing away from your body or the hot water in the material will continue to burn the skin.

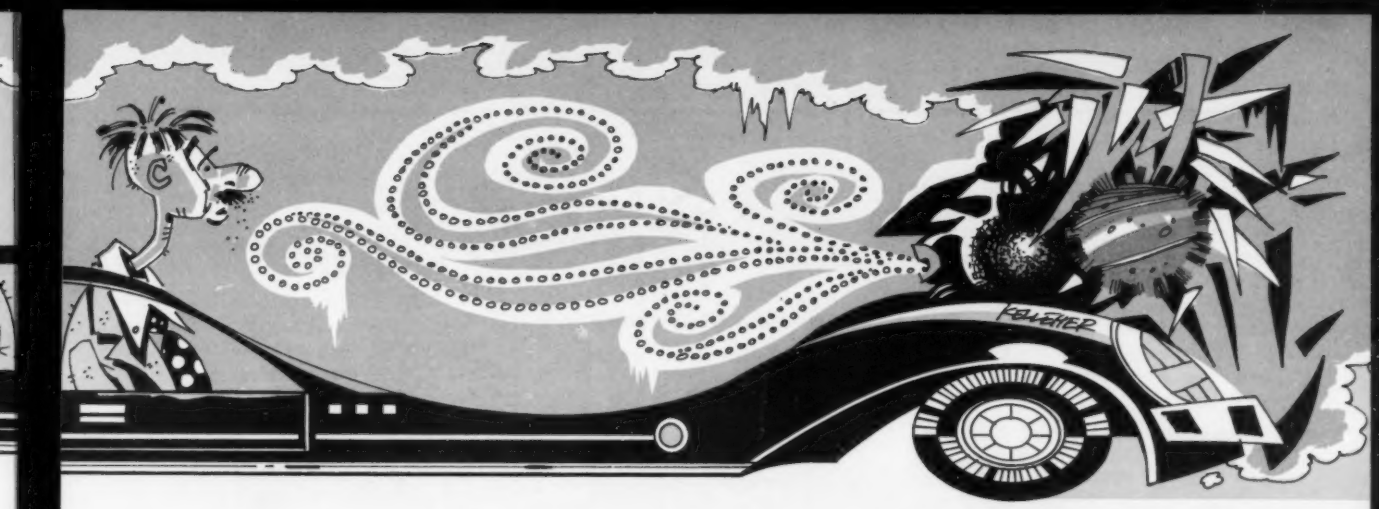
While you're waiting for the system to cool down, check the fan belt. If it is broken it'll have to be replaced. It will also require replacement if it has a polished appearance, or is badly cracked or frayed. If the belt is in good condition, check to make sure there is only a ½-inch deflection midway between the pulleys. Too much play means the belt is loose which results in slippage, rapid belt wear and the overheated engine. Overtighten the belt and it wears too fast, besides causing early failure of fan, water pump and other unit shafts and bearings.

After the engine has cooled to less than 180 degrees Fahrenheit, start it and very slowly fill the radiator. Now examine the cooling system for leaks or other reasons why the coolant was lost.

Tighten the hose clamp if the coolant is leaking from a hose connection. If the leak continues, tightly wrap the connection with tape until the hose can be replaced. Radiator core leaks can be plugged with a wood plug in emergencies. Whittle a piece of soft wood (a match stick) to a size slightly larger than the hole and insert it in the opening. The plug can remain until a permanent repair has been made.

A leak from the water pump shaft indicates the seal is defective and the pump must be replaced. However, a leak between the pump and the engine is usually only a broken gasket. The pump will have to be removed to replace the gasket.

Has the thermostat stopped operating properly, refusing to allow the coolant to circulate? Allow the engine to run at a fast idle while you look into the radiator filler neck. When the engine is cool, the thermostat should be closed and there will be no water movement in the radiator other than the small waves from engine vibrations. When the engine reaches operating temperature, the thermostat should open and the water in the radiator should churn about. However, if the water doesn't stir, the thermostat has failed. Another way to check thermostat operation is by compressing the upper radiator hose with your hand while the engine runs at a fast idle.



COOLING SYSTEMS

Accelerating the warmed engine will produce a surge of water through the hose that you can feel if the thermostat is working correctly.

A non-operational thermostat will have to be replaced. In emergencies it can be removed to allow you to use your wheels until a new thermostat can be installed.

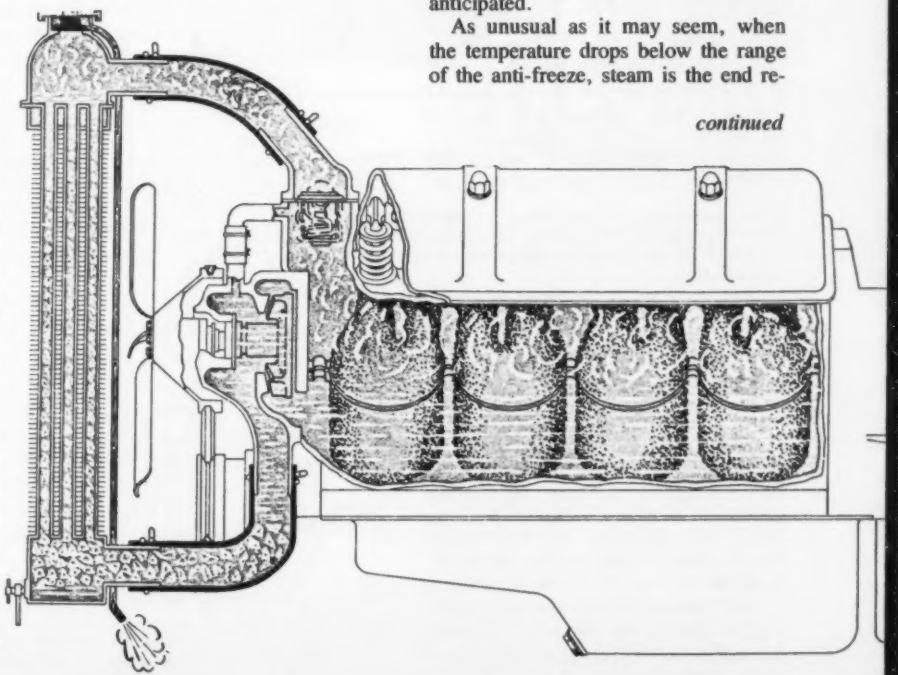
If you delay installing a new thermostat or decide that overheating problems can be avoided by not using one, a word of caution: Although less sudden in effect than overheating, overcooling may be equally harmful to your engine. Low engine termperatures, especially during cold weather, result not only in excess fuel consumption but also dilution of engine oil with unburned fuel and sludge formation from condensation of water in cylinders and the crankcase. Lubrication failure may follow sludge formation and lead to serious engine damage. Burned fuel vapors also mix with water in the crankcase to form corrosive acids which attack engine parts.

Radiator clogging is another cooling system problem that leads to overheating. Allow the engine to run until it reaches normal operating temperature and then turn it off. Now feel different parts of the radiator surface with your hand, starting on the top center section. If some of the sections are warm to the touch while others are cool, the core is probably clogged and the radiator must be cleaned.

On the other end of the scale, when water freezes it forms solid ice and expands approximately nine percent. This is enough force in this expansion to crack the engine's water jacket while seriously damaging the radiator and other parts. As little as a 10 percent solution of anti-freeze is enough to keep the ice from damaging either the engine or radiator. With this little anti-freeze in the system there is 90 percent ice crystals surrounded by 10 percent liquid anti-freeze. And although this is a thick semi-liquid mixture, it is unable to produce enough pressure to do any damage. Of course, the ideal is to have enough anti-freeze in the system to give full protection to the lowest cold-weather temperature anticipated.

As unusual as it may seem, when the temperature drops below the range of the anti-freeze, steam is the end re-

continued

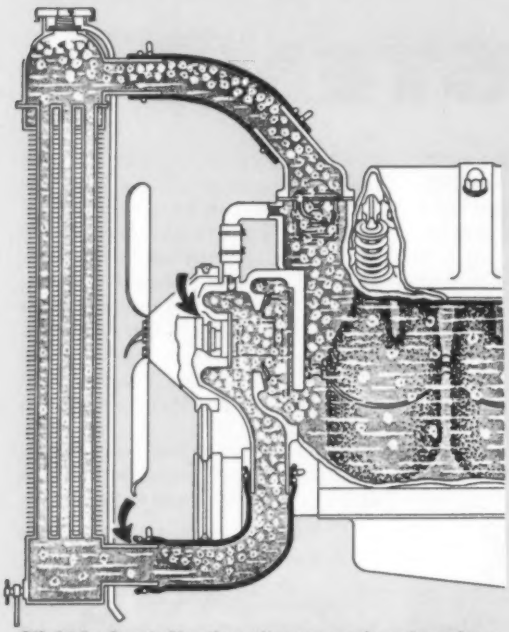


Slush ice formation in radiator results in the boiling of the coolant in the water jacket.

continued

sult. As the temperature gets colder, more and more ice crystals form in the radiator core and/or lower hoses. Eventually, these lower areas become clogged with slush ice and the water in the jacket boils. Zap, a steaming car on the coldest day of the winter.

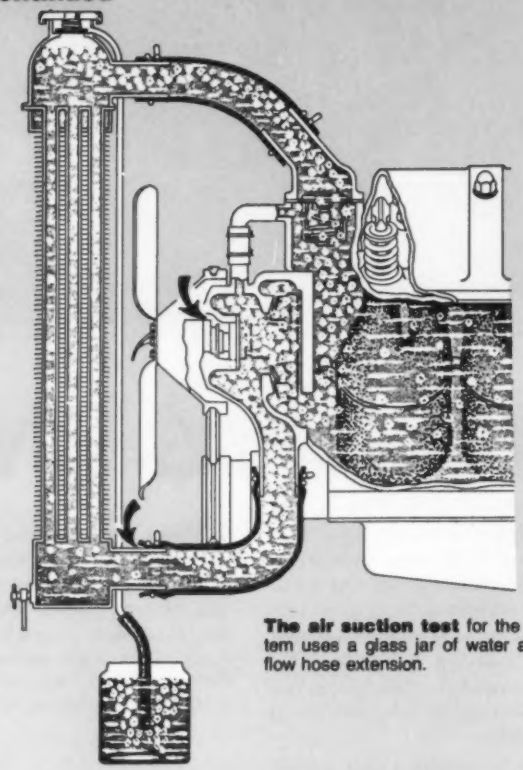
A sudden rise in the engine temperature just after starting on a cold day may be the first indication of frozen coolant. A quick radiator check may be enough to confirm the icing. Or you might try opening the drain cock.



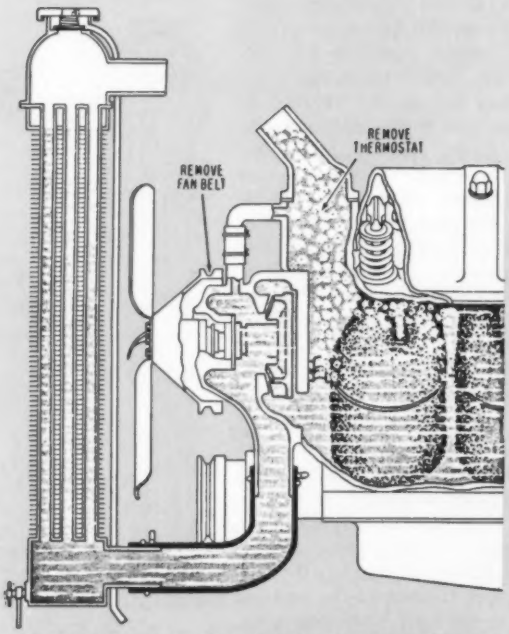
Slight leaks at either the water pump seal or a lower hose connection (arrows) allow air to be sucked into the cooling system at high engine speeds, causing water loss and overheating.

Squeezing a radiator hose is fruitless because the hose may feel hard even though the coolant isn't frozen. Feeling the radiator for cold spots after the engine has been running a short time may also reveal temporary clogging.

There are two practical ways to thaw the system without causing further engine or system damage. The safest is to let the car stand in a warm place without the engine running until the slush thaws out. The second method is safe as long as the freeze-up isn't too severe. Cover the radiator, start the engine and allow it to idle for a



The air suction test for the cooling system uses a glass jar of water and an overflow hose extension.



Testing for combustion leakage into the cooling system involves removing the fan belt, upper hose and thermostat. Air bubbles in the engine outlet or a raise in the fluid level confirm the combustion chamber leak.

minute. Stop the engine. Wait a minute before restarting the engine. Repeat the cycle, increasing the running time each interval. Heat radiated from the engine will slowly thaw the ice.

Small air bubbles trapped in the coolant increase the fluid's volume and decrease the cooling system's effectiveness. Because of the increased volume, liquid is forced out the overflow pipe. This leads to a serious water shortage in a very short time. The air also reduces heat transfer and may raise engine temperatures high enough to cause overheating. In addition, the presence of air in the coolant increases system rusting as much as 30 times. In turn, the rusting clogs the radiator and may hold enough heat in other critical engine areas to cause hot spots which form steam, leading to additional coolant loss.

When air is trapped in the coolant, the result is referred to as foaming. It doesn't appear to be a head at the top of the radiator, but gives the coolant a milky appearance while increasing the fluid volume.

When foaming is suspected, drain the cooling system and refill it with water. Operate the engine under normal conditions and check for additional foaming. If there is none, drain the system again and refill with the proper ratio coolant (see The Backyard Mechanic, August '80 DRIVER). Discard the old coolant, because either the water had too many minerals and impurities that tended to cause foaming, or the coolant was too old and worn out. However, should foaming continue in plain fresh water, test for air suction followed by a test for combustion gas leakage.

For the air suction test make sure the coolant level is low enough to prevent its overflow through the overflow pipe during the test. Block open the pressure cap valve and put it on the filler neck tightly. Now attach a length of hose to the overflow that will extend at least half way into a glass jar of water. With the engine running at normal operating temperature, watch for bubbles in the jar of water. A continuous stream of bubbles indicates air is being sucked into the system or the possibility of a combustion chamber leak.

Carefully check the water pump shaft seal, lower hose connections, lower portions of the radiator and other possible leakage points on the pump's suction side. Correct any leak problems and redo the test. If the air bubbles continue or no leaks are

continued

AIR-COOLED ENGINES SUFFER, TOO

Air-cooled engines have blowers that deliver cooling air over the cylinders and heads before being exhausted out of the vehicle. These engines usually incorporate an oil cooler, also.

Caution should be observed after working on an air-cooled engine to be sure that all metal shrouds and shields are in place and properly fitted to prevent air leaks.

Routinely examine the blower belt to be sure it has the correct tension and that the assembly is in good condition. Also check air openings to see that they are free of dirt, twigs, leaves, paper or anything else that could interfere with the air flow.

Air-cooled engine overheating may be the result of any of the following:

- Loose blower belt
- Worn or oil-soaked blower belt
- Plugged cooling fins
- Loose engine shield seals
- Loose spark plug boots
- Loose engine sheet metal
- Dirty oil cooler
- Thermostat sticking closed
- Incorrect cooling air valve opening
- Improper grade and viscosity oil
- Incorrect ignition timing
- Defective ignition system
- Incorrect valve timing
- Valves improperly adjusted
- Exhaust system partly restricted
- Fuel mixture too lean
- Dragging brakes

NOW THAT YOU'VE DONE IT; HOW DO YOU STOP THE PAIN?

The objectives in the treatment of burns and scalds are to relieve pain by excluding air and preventing contamination.

Begin by immersing the burned area in cold water until the pain ceases. Ice cubes can be used to keep the water at a temperature that feels soothing to the victim. If it is impossible to immerse the burned area, moist cold towels may be applied and renewed frequently. Simple burn ointment, available in any drugstore, vaseline, or a sterile gauze pad or clean cloth soaked in a baking soda solution (two tablespoons of baking soda (sodium bicarbonate) in a quart of water) can be applied to the burned area and covered with a loose bandage.

If blisters form, leave them intact. Wash the burn gently with clean soap (preferably one containing hexachlorophene like Dial, Lifebuoy or pHisohex) and rinse with clean water, without breaking blisters. Apply a sterile or clean dressing and get medical attention within 24 hours. If blisters are broken, rinse the burn off with clean or sterile water. Do not contaminate. Apply a sterile or clean dressing and get medical attention within four hours.

Another problem with burns is the loss of body fluids and salts. This applies to sunburned skin also; however, the loss is much worse if blisters form and worse yet if they break. Burns totaling 20 percent or more of the total body surface are potentially dangerous simply from the steady loss of fluids and salts. (To estimate the extent of burns apply the "Rule of Nines": 9% for the head and each upper extremity; 18% for the front or back of the trunk and each lower extremity.) If a victim is able to take liquids by mouth, allow him to do so while transporting him to the nearest medical facility. Water is OK but better yet add one teaspoon of salt per quart and encourage him to drink enough so that he continues to form urine.

found, conduct a combustion leakage test.

The combustion leakage test starts with a cold engine. Remove the fan belt and drain the coolant until the level is even with the top of the cylinder block. Then remove the upper hose and thermostat and fill the radiator with water until it flows out the thermostat opening. It may be necessary to block the radiator's upper hose connection to avoid spillage.

Start the engine and accelerate it six or eight times. If there are bubbles at the engine outlet or the fluid level rises, there is a combustion leak into the coolant. Very small leaks require you to jack up the rear wheels. Then run the engine at a maximum safe speed in high gear, loading it gradually and intermittently with the brakes. This test must be done quickly since once boiling starts the results are misleading.

If there are indications of leakage, remove the cylinder head and inspect the gasket, head and block gasket surfaces, cylinder bores, combustion chambers and water jackets for leaks, blowby, coolant obstructions and other defects.

If you didn't find a combustion leak and the air test still displays bubbles, rebuild the water pump.

As with any portion of a motor vehicle, the best maintenance program is preventive and preventive cooling system maintenance was covered in detail in the August '80 DRIVER. The most important part of preventive cooling system maintenance is the regular coolant level check.

COMMON PROBLEMS

There are times when routine maintenance and service don't correct a problem. These unusual problems are time-consuming and nearly impossible to diagnose. Since many of these malfunctions are caused by incorrect, inoperative, defective or missing components, factory service bulletins frequently pinpoint the causes.

The following are somewhat common "unusual" problems that have been identified by manufacturers.

AMERICAN MOTORS: The coolant temperature light on some 1975-76 Pacers (without ralley package) may light even though there is no coolant system problem. The problem is caused by the installation of the wrong temperature sending unit. Correct the situation by installing temperature sending unit AMC Part No. 3225019.

FORD MOTOR CO: Excessive coolant loss in 1975-77 vehicles with 400 cubic inch V-8 engines may be caused by a hairline crack in the lifter galley call on either side of the engine. The crack is usually located about 1½ inches above the lifters between the number one and two or number six and seven cylinders. The coolant is lost into the oil pan.

Overheating in 1972-73 V-8s may be caused by a cylinder head gasket that was installed in reverse position, blockint the coolant passages.

Overheating in 1974 Maverick and Comet models with V-8 engines and/or air conditioning may be solved by repositioning the front license plate from the center of the bumper to the extreme right position on the bumper.

An air lock in the cooling system may cause overheating in some early-1975 Mustangs and Pintos.

Insufficient heat in 1971-74 Pintos with the 2000 cc engine is often the result of a twisted rubber "O" ring gasket which is not sealing properly under the thermostat housing. This allows water to by-pass the thermostat.

Poor heater and defroster performance in 1979-80 models may be caused by low coolant level. When cold, there should be coolant not more than two inches below the filler neck with at least four inches of coolant in the recovery bottle.

GENERAL MOTORS

Buick: Water loss into the oil on 455 ci engines may be the result of enlarged oblong casting clean-out holes in the heads as opposed to the round holes found in the original equipment heads. A cylinder head gasket with matching oblong holes must be used to eliminate possible water loss into the oil.

LaSabre and Electra models of 1972-3 with 455 ci engines may require additional cooling to avoid overheating during heavy city driving or extended idling periods. To get this additional cooling, remove the lower tie bar baffle.

Cadillac: Some 1973-74s are overheating and losing coolant. These may have a restriction in the laminated exhaust pipe in front of the muffler which visual inspection may not detect.

Oldsmobile: Engine overheating on some 1973 models with 350 or 455 ci engines may be due to a restricted air cleaner vacuum hose between the intake manifold and air cleaner sensor.

Another overheating problem on the 1973 models may be caused by the large air pipe from the manifold heat stove to the air cleaner snorkle being too long. This allows cold air to leak between the air horn of the carburetor and the base of the air cleaner.

Some 1971-76 V-8s may overheat because of an incorrect thermostat. Service replacement thermostats that are butterfly-type with the part number 410772 must not be installed. Use only part number 410899. The correct thermostat is the type currently used in production.

There may be a high-pitched whine from the cooling system on some 1973 Cutlass, 88, 98 and Toronado models. This noise may be caused by the omission of the rubber restrictor washer from the reducer valve nipple on the heater inlet hose-to-manifold fitting.

Some 1977 V-6 engines have a

thumping sound emitted from the heater inlet hose. This is caused by a restriction in the by-pass part of the water pump or an obstruction in the cylinder head. To correct the problem, remove the water pump and run a small rod into the by-pass port to make sure it is not clogged with flashing material.

Some early-1977 models may have a problem with the radiator side tank separating from the core. The problem is generally an incorrect capacity radiator. Low capacity radiators are not designed to accommodate the extreme amount of hot coolant surge that occurs when the thermostat opens. To correct the problem, first make sure the radiator is the right size, then repair or replace.

The low coolant warning light may glow on some 1975-76 98, 88 and Toronado models even though everything in the system is fine. This problem is generally caused by an improper ground between the radiator and frame. To correct the problem, run a ground strap between the radiator and frame.

Pontiac: Some 1971 Ventura II models with 6-cylinder engines may be equipped with the incorrect engine fan. Because this fan doesn't have sufficient cooling capacity, these cars may overheat.

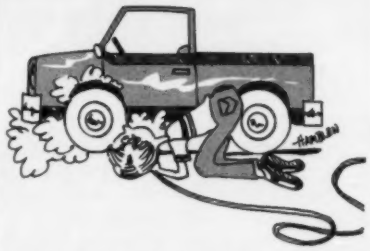
Overheating on all 1972-73 models except the Ventura II and 1973s with single exhaust systems may be the result of a restriction in the laminated exhaust pipe in front of the muffler which visual inspection may not detect.

Overheating in 6-cylinder 1974 Venturas may be the result of a small hole developing in the upper radiator hose where it contacts the A.I.R. pump pulley. Before installing a new hose, cut approximately ½-inch off each end to provide necessary clearance.

A distorted filler neck flange on 1970s may result in coolant overflow.

Coolant loss in 1970-77 models is often improperly diagnosed as water pump seal failure. To eliminate any error in determining why the coolant is being lost first determine the amount of the loss and when it generally occurs. Remember that some operations, such as trailer towing, cause some slight coolant loss. Next pressure check the system. If the pressure is lost but there is no visible evidence, remove the spark plugs and inspect the cylinders for moisture. Should you find moisture in any cylinder, apply air pressure to the cylinder with the piston at top dead center and the valves closed. If the head gasket or cylinder head are leaking, bubbles should appear in the radiator. Some traces of moisture, staining or occasional drops of water from the water pump vent are normal.

Timely Topics



HUFFY BICYCLES MAY POSE HAZARD

As many as 95,000 bicycles manufactured by the Huffy Corporation of Dayton, Ohio, may have a defect that could cause an injury, a loss of control, or the *failure of the brake* systems, the company has announced.

During a routine inspection, the bikes were found to have improper master link assemblies that could cause the drive chain to separate, the firm said.

According to Huffy, the defect could be found on any bicycles, except five, 10, or 12-speed lightweight bikes, manufactured by the firm between April 15 and May 15.

The bikes were marketed under the following brand names: Huffy, All Pro, J.C. Penney, Open Road, Coast King, Westpoint, Western Flyer, Woolco, and Performer. Bikes manufactured during the period can be identified by a code number on the left rear axle plate, beginning with the letter "C" and followed by five numbers in the range 81060-81360.

The company recommended that owners of the defective bikes not use them until they can be taken to a Huffy service center for free inspection and repair. No accidents or injuries have been reported, a company spokesman said.

AUTOMOTIVE RUST

If you're trying to make your old car last a few more years, you probably know that one thing that will hasten its demise is rust.

But rust can be prevented by simple, regular maintenance. And to give you some specific tips on what to do with your car, the National Highway Traffic Safety Administration has a free factsheet. For your copy of *Automotive Rust*, write to the Consumer Information Center, Dept. 501H, Pueblo, CO 81009.

Rust is aggravated by corrosive substances in the air or on the highway. The more obvious and less serious result is the deterioration of your car's body, especially the bottom of the doors, the fender areas exposed to road splash from the wheels, and around the rear window. The most serious result of rust is the weakening of areas under floor mats and carpeting, the deterioration of the third-seat area in station wagons, and the weakening of the frame and cross-members.

To help prevent corrosion, follow these simple measures:

- Keep your car clean—wash it frequently and wax it at least twice a year.
- Thoroughly hose down the underside of the car at least twice a year if you live in an area where sand and salt are used on the roads. Do it midway through winter and at winter's end.
- Make sure the drain holes in the bottom of the car doors are kept open. After washing your car, inspect it periodically and, if you notice extreme weakness or deterioration of any structural members, have a welding shop strengthen the weakened area.

GOT MAIL ORDER PROBLEMS?

The Federal Trade Commission says a mail order firm has 30 days (or some other clearly specified time) after receiving an order to ship the merchandise or notify you of the delay. The firm must also notify you of exactly when the merchandise will be shipped or offer to cancel the order and immediately refund all monies. During the following 30 days the firm may assume you are willing to wait for delivery unless they hear otherwise. Then on the 31st day, the mail order house must assume you want the refund. If they haven't shipped the goods by the 60th day since notifying you of the delay (the 90th day after they initially received the order), they must refund your money at once.

Now that you know the law, what do you do when you think something has gone wrong with your order? First, drop a line to the company's consumer relations department or call them. Still getting nowhere? You could contact the Better Business Bureau or the FTC. However, while both BBB and FTC accept complaints and make them

continued

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION AND SAFETY CENTER
Norton Air Force Base, California 92409

HON HANS M. MARK
Secretary of the Air Force

Lt Gen HOWARD W. LEAF
The Inspector General, USAF

Maj Gen LEN C. RUSSELL
Commander
Air Force Inspection and Safety Center

Brig Gen LELAND K. LUKENS
Director
Aerospace Safety USAF

PUBLISHED MONTHLY IN COOPERATION
WITH
THE DEPARTMENT OF THE ARMY
AND
THE DEPARTMENT OF THE NAVY

Dr. FRANCIS S. McGLADE
Director of Safety
United States Army

RADM W. B. WARWICK
Commander
Naval Safety Center

AFRP 127-1
Controlled circulation entered
at Santa Ana, CA USPS 448-630

Authority to publish this periodical automatically expires on 29 January 1982 unless its continuance is authorized by the approving authority prior to that date.

SUBSCRIPTION—DRIVER is available on subscription for $12.00 per year domestic ($1.00 per copy); $15.00 per year for foreign mailing ($1.25 per copy), through the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Back issues are not available. Changes in subscription mailings should be sent to the above address. Use of funds for printing this publication has been approved by Headquarters, United States Air Force, Department of Defense, Washington, D.C. No payment can be made for manuscripts submitted for publication. Contributions are welcomed, as are comments and criticism. Address all correspondence to the Editor, DRIVER Magazine, HQ AFISC/SEDD, Norton AFB, CA 92409.

Distribution. One copy for every 9 members of USAF.

ATTENTION DEPT OF THE NAVY PERSONNEL: Address all queries concerning distribution to NAVSAFECEN, NAS, NORFOLK, VA 23511, Attn: Safety Publications Dept. All other correspondence will be welcomed by the Editor.

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timely topics
continued

part of their records, neither will normally carry matters further. The FTC may look into further action if they feel one of their regs is being violated.

So what do you do? You call the Direct Mail Marketing Association (DMMA) mail order action hotline (212) 689-4977. This is the fastest way to results because DMMA will contact any firm even if the company is not a member of DMMA.

UTILITY VEHICLES FOUND HAZARDOUS ON HIGHWAYS

You are far more likely to overturn and be ejected onto the roadway while riding in a utility vehicle than while riding in a passenger car, Highway Safety Research Insitute (HSRI) researchers have reported. As a result, your chances of being killed or seriously injured also are much greater, they said.

Conducted by members of the University of Michigan group for the Insurance Institute for Highway Safety, the study evaluated the *on-road* performance of utility vehicles—such as the Chevrolet Blazer, the International Scout, the Ford Bronco, and the Jeep CJ series. In addition to the high rollover rates for utility vehicles in general, the study also reported large variations among the different models, which were related to their size. For example, the Jeep CJ series and the pre-1978 Ford Bronco—both smaller utility vehicles—were reported to roll over at least twice as often as the larger Chevrolet Blazer.

The study also included a series of physical measurements taken on a number of utility vehicles to assess their stability. The results of this analysis also indicated that the smaller utility vehicles have less resistance to rolling over than the larger models.

BENEFIT OF LIMIT

According to the American Epilepsy Foundation, the 55 mph speed limit has been "the single most effective preventative for new cases of epilepsy because it has reduced (by 90,000 each year) the number of head trauma injuries resulting from automobile accidents."

LETTERS to the EDITOR

IMPORTING CYCLE

I am stationed on Okinawa and bought a 1980 Japanese motorcycle. It is not a U.S.-export model but I would like to ship this motorcycle back to the States as my POV. Two different local dealers told me all I would have to do to make it States-legal is to change the headlight and speedometer. Do you know if this information is correct?

Kevin N. Johnsen
PSC #1 Box 27993
APO San Francisco 96230

Basically what the dealers told you is true. If you bought your motorcycle from the Exchange Service you should deal with them, otherwise you'll have to start with what your manufacturer calls a "trading corporation." Discuss your plans with them. They will take your bike and set it up for the United States. When you pick it up at the port in the United States, you will have to sign an affidavit about your plans to take the bike to a dealer for final setup. The local dealer will then set up the bike, which should include a complete mechanic check and tuneup. Then you will be issued a warranty for the United States Safe cycling.

THE WEAKER SEX

In the June 1980 DRIVER Magazine a woman backyard mechanic asked "Double Tech" what she could do to overcome her lack of strength when doing such things as wrestling the spare tire onto a hub. The reply was, "When you

remove a flat, you'll notice that you have to jack the car up a little farther to get the inflated tire back on the hub. Lean the inflated tire against the hub—with the holes aligned to the studs—and then jack the vehicle up more. The tire should 'fall' into place."

The Army's PS Magazine had a solution for manhandling heavy truck spare tires that women could probably apply. They recommend laying the wheel wrench or jack handle flat on the ground directly under the hub. Then roll the spare onto it and use the wrench as a lever to help lift the wheel onto the hub.

Of course, all jack handles and wheel wrenches aren't suitable for this task, so some other rod, stick, etc. can be used.

I really like your mag.

Ernie Steward
Ground Mobility Writer
PS Magazine
Lexington, KY 40511

FREEWAY SHOULDERS FOR BICYCLES

Your July 1980 DRIVER had a letter by Mr. Goldbach that contained some information that your readers might find misleading.

He stated that there were less than 10 bicycle accidents ON FREEWAY SHOULDERS SINCE THEY WERE OPENED TO CYCLISTS OVER FOUR YEARS AGO.

This leaves the reader with the impression that in the state of California bicyclists are free to use the shoulders of any freeway in the state. This is not true.

According to the Redwood City office of the California Highway Patrol: "Freeway shoulders are not opened to bicycles except in a very few specified areas, of which there are none in Santa Clara County."

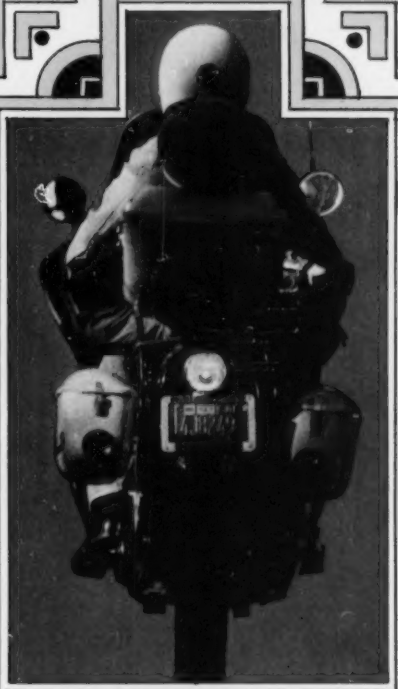
So, if any of your California readers are going out to try the freeway shoulders on their bicycles they had better make sure the ones they ride are legal. Check with the local CHP office before riding if they are unsure of the rules.

J.R. Shackleton
Public Affairs Officer
Naval Air Station
Moffett Field, CA 94035

What Mr. Goldbach said was ". . . the history of bicycles USING 1,000 MILES OF FREEWAY SHOULDERS in the state of California reveals a sparkling safety record–less than 10 bicycle accidents . . ." Clearly, he was not implying that it was all right for bicyclists to use freeway shoulders anywhere in the state. A thousand miles of road isn't much in a state the size of California, but nevertheless the record is good.

letters to the editor

Address your letters to:
Editor
DRIVER Magazine
AFISC/SEDD
Norton AFB CA 92409



ATTENTION MOTORCYCLISTS

Motorcycle accidents are *literally* killing us. What can be done?

We need your opinions. Please send us a letter or card giving us your frank, no-holds-barred opinion of what you think can be done to decrease motorcycle accidents among our military members.

Names are not required, but please do tell us about your riding experience and the motorcycle training you've had.

Mail your suggestions to:

Lt Col JIM COX
AFISC/SET
Norton AFB, CA 92409

☆U.S. GOVERNMENT PRINTING OFFICE: 1980—683-215/10

The one-room schoolhouse. Americans feel nostalgic about it, but not many of us have even seen one. Today's school is more likely to be a sprawling plant of bricks and cement and asphalt, surrounded by busy streets and a parking lot full of big yellow buses.

If your daily route takes you near a school, remember to be extra careful about your speed, really alert near pedestrian crossings. Watch for buses loading or unloading youngsters. Patience, please. The kids are going back to school.